

2009

Annual Operating Plan

for

Fish Production Programs

in the

Salmon River Basin

By

Idaho Department of Fish and Game
U.S. Fish and Wildlife Service
Shoshone-Bannock Tribes
Idaho Power Company
Nez Perce Tribe

xxxx, 2009

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(Each section lists contact persons for additional information, coordination, or notification – contact information is listed in Section 5).

1. STEELHEAD

All steelhead *Oncorhynchus mykiss* in Idaho are summer steelhead, determined by time of entry into the Columbia River. All steelhead in a brood year spawn in the spring. Idaho's steelhead enter fresh water in one year and spawn the following spring. Idaho's steelhead enter fresh water in one year and spawn the following spring. Idaho has A and B strains of steelhead based on life history characteristics. Generally A-strain steelhead spend one year in the ocean and return to fresh water during the summer. The B-strain steelhead commonly spends two years in the ocean before returning to fresh water in late summer or autumn.

1.1 Brood Year 2008 Steelhead

1.1.1 Hagerman National Fish Hatchery

The Hagerman NFH LSRCP goal is to provide adult returns for lower river fisheries and return 13,600 adult steelhead to Lower Granite Dam and back to the Snake River Basin. Eggs for the program are obtained from adults returning to Sawtooth FH, Pahsimeroi FH, Dworshak NFH, and in times of need, Oxbow FH. Eggs are collected and eyed at various locations. Eyed eggs are taken to Hagerman NFH, reared to smolts, and transported to the Salmon River for direct stream release at multiple sites.

1.1.1.1. Production status - As of December 31, 2008 Hagerman NFH had a total of 1,068,795 Sawtooth A, 201,501 Pahsimeroi A, and 202,294 Dworshak B steelhead on station (163 mm average total length, 10.3 fpp). *Bryan Kenworthy / Nate Wiese*

1.1.1.2. Outside rearing - Fish are reared in three banks of raceways at a maximum density index of 0.20 and a maximum flow index of 1.20. Yankee Fork supplementation smolts will be reared separately from general production smolts. All fish are fed dry extruded floating diets which are placed into demand feeders twice weekly. A length at release standard of 180 mm to 250 mm is established under the NOAA Fisheries 1999 Biological Opinion. The BY2008 steelhead are projected for an average size of 220 mm at release. This is accomplished by adjusting the hatchery constant. Previous FCR rates are used to project fish sizes over the grow-out period. This avoids the need to crowd and stress fish for periodic sample counts. Oxygen and ammonia are monitored during periods of peak loading. Water temperature remains a constant 59⁰F. *Bryan Kenworthy / Nate Wiese*

1.1.1.3 Monitoring and Evaluation. Approximately 1,118,000 steelhead were adipose-clipped and 240,000 were CWT in August 2008, as described in the BY 2008 mark plan. A release of 80,000 AD/CWT BY2008 Sawtooth A steelhead is planned for the Sawtooth Weir in 2009 (Table 1). In addition, a release of 80,000 AD/CWT BY2008 Clearwater steelhead to the Little Salmon River and a release of 80,000 AD/CWT BY2008 Clearwater

steelhead to the East Fork Salmon River is planned for 2009. CWT will be used to measure adult contribution to fisheries, as well as evaluate total adult returns by release group. The Sawtooth CWT was split into 40,000 CWT groups in first-use and third-use rearing water to compare smolt-to-adult survival against rearing conditions. *Bryan Kenworthy / Nate Wiese/Carl Stiefel*

Approximately 26,900 fish were PIT tagged in January 2009 (Table 1). LSRCP provided 18,700 of these PIT tags, the remaining 8,200 were provided by Comparative Survival Study (CSS). Fish were PIT tagged across all release groups to evaluate juvenile outmigration success and to provide adult return estimates to Lower Granite Dam. All of these PIT tags will also be included in the CSS, in which Fish Passage Center personnel randomly select approximately 70% of PIT tagged fish within the release (18,830 fish) to be treated as run-at-large (monitor mode) at each Columbia River hydro-system collection facility. The balance of the PIT tagged fish (8,070) will be diverted back to the river (default bypass mode) for reach survival estimates. A background and summary of the CSS study (10 year retrospective report) can be found at <http://www.fpc.org/documents/CSS/FINAL> *Carl Stiefel*

Shoshone-Bannock Tribes (SBT) – DNA Parentage Exclusion Analysis: Steelhead smolts will be reared separately from general production fish as part of the SBT long-term Monitoring and Evaluation Plan (Denny et al 2006). The SBT is conducting an experimental study on the efficacy of releasing steelhead smolts for supplementation in the Yankee Fork Salmon River. The study includes a DNA parental exclusion analysis, as described by Jones and Ardren (2003) to differentiate F₂ juvenile and adult steelhead produced by releasing F₁ smolt that return to spawn naturally. Sawtooth FH parental broodstock will be genotyped and used to supply eyed eggs (supplementation fish) reared to smolt at Hagerman NFH. F₁ smolts will be released in Yankee Fork in the spring. F₁ adults will return to Yankee Fork and spawn naturally with other steelhead present. The SBT will capture F₂ progeny at a rotary screw trap in Yankee Fork and determine the efficacy of the smolt supplementation strategy using DNA genotyping through grandparentage analysis of unknown matings (Letcher and King 2001). Future evaluations will include determination of how many adults were produced at the F₁ and F₂ generations. *Lytle Denny*

1.1.1.4. Juvenile fish health - Mortality and selected fish pathogens are monitored monthly until release. A pre-release exam on 60 fish each of the three populations will be performed prior to the start of distribution. Prior to release, a 60 fish sample is taken and assayed for Infectious Hematopoietic Necrosis Virus (IHNV), Infectious Pancreatic Necrosis Virus (IPNV), Viral Hemorrhagic Septicemia Virus (VHSV), *Aeromonas salmonicida*, *Yersinia ruckerii*, Bacterial Kidney Disease (BKD), and *Myxobolus cerebralis*. *Kathy Clemens*

1.1.1.5. Projected release - Projected releases in 2009 total: 1,468,000 smolts (1,068,000 Sawtooth A's (150,000 unmarked), 200,000 Pahsimeroi A's (all unmarked), and 200,000 Dworshak B's. Target release length is 220 mm and target release size is 4.5 fpp (Table 1).

Release locations will be according to the guidelines established by the NZMS Risk Assessment. *Bryan Kenworthy / Nate Wiese*

1.1.1.6. Excess production strategies - No excess production is anticipated. Current egg requests are maintained to receive only enough eggs to meet target numbers at release (+10%). *Bryan Kenworthy /Nate Wiese*

1.1.1.7. Transportation strategies - All of the Hagerman NFH steelhead smolt releases are trucked. Hauling will begin the last week of March and conclude the second week of May. The Hatchery will follow IHOT fish transportation guidelines. Hauling typically occurs Monday through Friday. Releases at the Little Salmon River will be coordinated with Magic Valley FH, Niagara Springs FH, and McCall FH, to minimize potential traffic and safety issues. East Fork Salmon River and Sawtooth weir releases will be coordinated with Sawtooth FH. Yankee Fork releases will be coordinated with the Shoshone Bannock Tribes (SBT). *Bryan Kenworthy/Nate Wiese/Rick Lowell/Jerry Chapman/Gene McPherson /Brent Snider/Lytle Denny/Bruce McCloud*

1.1.2 Magic Valley Fish Hatchery

The Magic Valley FH LSRCP adult mitigation return goal is to provide adult returns for lower river fisheries and 11,660 adult steelhead to Lower Granite Dam and back to the Snake River Basin. To attain that goal, the planned production is: 800,000 Pahsimeroi/Sawtooth A; 690,000 Dworshak B; 60,000 Upper Salmon B; and 68,000 East Fork Natural smolts. See Table 1 for release locations. Eggs for the program are obtained from adults trapped at Sawtooth FH, Pahsimeroi FH, Dworshak NFH, Squaw Creek Trap, and the East Fork Salmon River Trap. All stocks are reared to smolt size at Magic Valley FH and transported for direct stream or acclimated release at multiple sites in the Salmon River.

1.1.2.1. Production status - As of February 1, 2009, Magic Valley FH has a total of 442,583 Sawtooth A, 380,144 Pahsimeroi A, 725,113 Dworshak B, 58,184 Upper Salmon B, and 68,838 East Fork Natural steelhead on station (168.0 mm average total length, 9.0 fpp). *Rick Lowell*

1.1.2.2. Outside rearing - Fish are reared in four banks of raceways split in half with two west banks and two east banks. Yankee Fork supplementation smolts will be reared separately from general production smolts. Density typically reaches an index of 0.30 and a maximum flow index of 1.20. All fish are fed a Rangen's 470 dry extruded slow sinking diet. This high protein diet is used in an attempt to reduce the incidence of sore-back and to meet TMDL and NPDES limits. Fish are fed on a Five-day-on and Two-day-off schedule to control growth as needed during the fall. Seven-day-a-week feeding resumes as soon as possible in the spring. A length at release target of 180 mm to 250 mm was established under the NOAA Fisheries 1999 Biological Opinion. The BY2008 steelhead are projected for an average size of 220 mm at release. This will be accomplished by adjusting the fish feeding rate. Sample counts are performed monthly on representative ponds, and length frequencies are calculated prior to transport. Dissolved oxygen and total

gas saturation are monitored intermittently throughout the rearing cycle. Water temperature remains a constant 58⁰F. *Rick Lowell/Tom Tighe*

1.1.2.3. Monitoring and Evaluation - Approximately 1,500,000 steelhead were adipose-clipped and 510,000 were CWT (including 70,000 CWT only) in September 2008, as described in the BY 2008 mark plan. CWT will be used to measure adult contribution to fisheries, as well as evaluate total adult returns. A total of 37,650 (37,496 Fish on File) fish were PIT tagged during early January 2009 (Table 1). LSRCP provided 26,300 of these PIT tags, the remaining 11,350 were provided by Comparative Survival Study (CSS). Fish were PIT tagged across all release groups to evaluate juvenile outmigration success and to provide adult return estimates to Lower Granite Dam. All of these PIT tags will also be included in the CSS, in which Fish Passage Center personnel randomly select approximately 70% of PIT tagged fish within the release (26,355 fish) to be treated as run-at-large (monitor mode) at each Columbia River hydro-system collection facility. The balance of the PIT tagged fish (11,295) will be diverted back to the river (default bypass mode) for reach survival estimates. A background and summary of the CSS study (10 year retrospective report) can be found at <http://www.fpc.org/documents/CSS/FINAL>. *Carl Stiefel*

Shoshone-Bannock Tribes (SBT) – DNA Parentage Exclusion Analysis: Steelhead smolt will be reared separately from general production fish as part of the SBT long-term Monitoring and Evaluation Plan (Denny et al 2006). The SBT is conducting an experimental study on the efficacy of releasing steelhead smolts for supplementation in the Yankee Fork Salmon River. The study includes a DNA parental exclusion analysis, as described by Jones and Ardren (2003) to differentiate F₂ juvenile and adult steelhead produced by releasing F₁ smolt that return to spawn naturally. Sawtooth FH parental broodstock will be genotyped and used to supply eyed eggs (supplementation fish) reared to smolt at Hagerman NFH. F₁ smolts will be released in Yankee Fork in the spring. F₁ adults will return to Yankee Fork and spawn naturally with other steelhead present. The SBT will capture F₂ progeny at a rotary screw trap in Yankee Fork and determine the efficacy of the smolt supplementation strategy using DNA genotyping through grandparentage analysis of unknown matings (Letcher and King 2001). Future evaluations will include determination of how many adults were produced at the F₁ and F₂ generations. *Lytle Denny*

1.1.2.4. Juvenile fish health - Fish health inspection and diagnostic services will be provided by personnel and facilities at the EFHL. Mortality rates will be monitored monthly via the written hatchery reports and through direct communication. Diagnostic services will be provided as needed at the request of hatchery personnel. Quarterly on-site inspections will include tests for the presence of replicating viruses, *Renibacterium salmoninarum* (RS), and general bacterial pathogens. A pre-liberation inspection will be done on all lots no more than 45 days prior to transportation, including an organosomatic index of fish quality. Specific pathogens tested for at pre-liberation will include IHNV, IPNV, VHSV, RS, *Aeromonas salmonicida*, *Yersinia ruckerii*, *Myxobolus cerebralis*, and any other pathogens that may seem prudent at the time. *Doug Burton*

1.1.2.5. Projected release - Projected release in 2009 is 1,651,000 smolts: 433,000 Sawtooth A's (124,000 unmarked), 282,000 Pahsimeroi A's, 718,000 Dworshak B's, 57,000 Upper Salmon B's, and 68,000 East Fork Naturals (all unmarked with CWT). Target release length is 220 mm and target release size is 4.5 fpp (Table 1). *Rick Lowell/Tom Tighe.*

1.1.2.6. Excess production strategies - Similar production relative to the BY2006 mark plan is anticipated. Initial BY2006 planning included a twenty percent reduction in production from the original hatchery release goal of two million smolts. However, current egg requests are estimated to receive enough eggs to meet target (1.6 million) numbers at release (+ 10%). *Sam Sharr*

1.1.2.7. Transportation strategies - All of the Magic Valley FH steelhead smolt releases are trucked. Hauling is scheduled to begin on April 6th, and conclude on April 30th. The Hatchery will follow IHOT fish transportation guidelines and NZMS risk assessment guidelines. Hauling typically occurs Monday through Friday. Releases at the Little Salmon River will be coordinated with Niagara Springs FH, McCall FH, and the Hagerman NFH to minimize potential traffic and safety issues. East Fork Salmon River and Squaw Creek Pond releases will be coordinated with Sawtooth FH. Yankee Fork, Valley Creek, and Slate Creek releases will be coordinated with the SBT via the IDFG Fisheries Bureau. *Sam Sharr/Bryan Kenworthy/Rick Lowell/Jerry Chapman/Gene McPherson/Brent Snider/Lytle Denny.*

1.1.3 Niagara Springs Fish Hatchery

IPC's mitigation goal at Niagara Springs FH is to annually produce 400,000 pounds of healthy steelhead smolts. This equates to approximately 1.8 million smolts at a mean size of 4.5 fpp. Eggs for the program are obtained from adult returns spawned at Pahsimeroi FH and Oxbow FH. The fish are reared from eyed eggs and swim-up fry to smolts at Niagara Springs FH and released into the Pahsimeroi River below the Pahsimeroi FH weir, into the Snake River below Hells Canyon Dam, and into the Little Salmon River at Stinky Springs or Hazard Creek. *Jerry Chapman*

1.1.3.1 Production status - Niagara Springs FH had a total of 1,021,719 Pahsimeroi-A and 829,996 Oxbow-A steelhead on station on January 31, 2009. *Jerry Chapman*

1.1.3.2. Outside rearing - Fish are reared in three banks of raceways at a maximum density index of 0.35 lbs/ft³/in and a maximum flow index of 0.9 lbs/gpm/in. Steelhead are fed Rangen's extruded dry feeds throughout the early rearing period. Feed is dispensed by hand-feeding and supplemented with Ziegler belt feeders in the indoor and outdoor nursery areas. When fish reach 75 fpp, they are switched to Rangen's slow-sinking 470 extruded diet to allow staff to utilize two bulk tanks, a feed conveyor system, a fines separator and bridge feeders.

A length at release standard of 180 to 250 mm is established under the NOAA Fisheries 1999 Biological Opinion. The BY2008 steelhead are projected for an average size of 220

mm. This will be accomplished by holding the fish off feed and receiving eggs from later spawn dates to decrease fish size and minimize days off feed. Sample counts are performed bimonthly on representative raceways until December and then performed once per month until release. Length frequencies are checked periodically during outside rearing. Dissolved oxygen is monitored once per month as per NPDES protocol and periodically during periods of peak loading. Water temperature remains a constant 59°F.
Jerry Chapman

1.1.3.3. Monitoring and evaluation - The BY2008 Mark Plan requires all fish to be ad-clipped, while 90,000 fish also have CWTs. AD-clipping and CWT tagging were completed during September 2008. CWT will be used to measure adult contribution to fisheries, as well as evaluate total adult returns. Approximately 25,200 BY 2008 juvenile steelhead were PIT tagged in January 2009 (Table 1). IPC provided 1,200 of these PIT tags, the remaining 24,000 were provided by Comparative Survival Study (CSS). Fish were PIT tagged across all release groups to evaluate juvenile outmigration success and to provide adult return estimates to Lower Granite Dam. PIT tags provided by IPC will only be used to evaluate juvenile outmigration success. Fish Passage Center personnel will randomly select approximately 70% of CSS PIT tagged fish within the release (16,800) to be treated as run-at-large (monitor mode) at each Columbia River hydro-system collection facility. The balance of the CSS PIT tagged fish (7,200) will be diverted back to the river (default bypass mode) for reach survival estimates. A background and summary of the CSS study (10 year retrospective report) can be found at <http://www.fpc.org/documents/CSS/FINAL> *Jerry Chapman/Carl Stiefel*

1.1.3.4. Niagara Springs Juvenile fish health - Fish health inspection and diagnostic services will be provided by personnel at the Eagle Fish Health Laboratory (EFHL). Diagnostic services will be provided as needed at the request of hatchery personnel. Quarterly on-site inspections will include tests for the presence of viral replicating agents, *Renibacterium salmoninarum* (RS) and other pathogens. To control low levels of coldwater disease (*Flavobacterium psychrophilum*) that typically show up in January, a ten-day treatment with medicated feed (Oxytetracycline) will be administered during February and March, 2009. Treatments will be scheduled to comply with 21-day withdrawal times needed prior to release. A pre-liberation inspection of 60 fish from each stock (Pahsimeroi-A and Oxbow-A) including an organosomatic index of fish quality will be done on all lots no more than 30-45 days prior to transportation. Specific pathogens tested for at pre-liberation will include IHNV, IPNV, VHSV, RS, *Flavobacterium psychrophilum*, *Aeromonas salmonicida*, *Yersinia ruckerii* and *Myxobolus cerebralis*. Approximately 50% of the steelhead from BY2008 was vaccinated against Furunculosis bacteria. *Doug Munson, Eagle Fish Health Lab*

1.1.3.5. Projected release - Projected releases in 2009 are: 830,000 Pahsimeroi-A smolts to the Pahsimeroi River; 525,000 Oxbow-A smolts to the Snake River below Hells Canyon Dam; 275,000 Oxbow-A smolts to the Little Salmon River; and 170,000 Pahsimeroi-A smolts to the Little Salmon River (Table 2). Target release length is 220 mm and target release size is 4.5 fpp. *Jerry Chapman*

1.1.3.6. Excess production strategies - No excess production is anticipated. Release inventories over 10 percent of the allocation to the Pahsimeroi River, Little Salmon, and Snake River release sites will be retained at the hatchery for outplanting in approved non-anadromous waters. *Jerry Chapman*

1.1.3.7. Transportation strategies - All Niagara Springs FH steelhead smolts are trucked to release sites using three IPC 5,000-gallon fish tankers. IPC will contract with Neil Ring Trucking, Inc. to haul fish to release locations. Hauling is scheduled to begin March 19 and conclude the fourth week of April. All fish are hauled in chilled spring water with the temperature adjusted to be within 3 degrees F of the receiving water. Tankers will be loaded with approximately 5,000 lbs. of steelhead smolts each, but will not exceed 5,500 lbs. Shipping will occur five days per week until all fish are stocked, with one day off in early April to complete a mid-season service on the tankers' generators. To reduce potential traffic and safety issues, releases at the Little Salmon River will be coordinated with Joel Patterson of McCall FH, staff from Magic Valley FH, Hagerman NFH, and Bruce McLeod of the NPT. Releases at the Pahsimeroi River and Snake River sites will be coordinated with the Pahsimeroi and Oxbow hatchery managers. *Jerry Chapman*

1.2 Brood Year 2009 Steelhead

1.2.1 Sawtooth Fish Hatchery

Approximately 500-550 pair of steelhead adults are needed to provide 2,120,000 eyed eggs for the LSRCP mitigation program (Table 14). Eggs are eyed and shipped to Magic Valley FH or Hagerman NFH for final rearing. In addition, 500,000 eyed eggs are provided for the Shoshone-Bannock Tribes streamside incubator project. Approximately 750,000 smolts are returned to Sawtooth from Hagerman NFH for weir release to provide harvest opportunity and brood stock.

1.2.1.1. Projected adult return - The projected return is 2,635 (\pm 1,728). *Jon Hansen*.

1.2.1.2. Ladder operation - Ladder and trap operations will begin the last week of March and continue until early May. Steelhead volitionally swim into attraction water into a single adult holding pond. The trapped steelhead are removed from the holding pond twice a week, counted into the male/female holding ponds, or spawned if ripe. Unmarked steelhead and other species are released above the weir, hatchery fish are spawned with surplus hatchery fish outplanted, or given to the tribes, or distributed to welfare programs. *Brent Snider*

1.2.1.3. Adult fish health - Adult steelhead monitoring will be conducted during spawning by personnel from the EFHL. Broodstock inspections will collect at least 120 ovarian fluid and 30 tissue (kidney/spleen) samples to assay for viral replicating agents from at least 150 females. Sixty kidney samples will be collected for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adults to examine for *Myxobolus cerebralis*. *Doug Munson*

1.2.1.4. Adult outplanting/marking - Unmarked adults are released upstream of the hatchery weir to spawn naturally. Genetic material and scale samples are collected from all unmarked steelhead. Excess hatchery adult males, after being marked with an opercle punch, may be taken downriver to be recycled through the fishery. *Brent Snider*

1.2.1.5. Carcass disposition - Spawned out carcasses are made available first to Tribal programs, then to charitable organizations. Secondly, excess, unspawned, and spawned-out fish are given to the public on a first-come-first-served basis. Due to whirling disease amplification issues, carcasses will not be used for nutrification of local waters. *Brent Snider*

1.2.1.6. Adult Monitoring and evaluation - Fish are sorted on Mondays and Thursdays. At sorting, fish are examined for gender, length measured, checked for various marks, radios, CWT, injuries, and readiness to spawn. Subsequent to sorting, ripe fish are spawned. To assess the utility of genetic parentage based analysis, tissue samples will be collected from every individual adipose fin clipped fish used for broodstock in 2009. Genetic and scale samples will also be collected from all trapped unmarked steelhead. *Brent Snider*

1.2.1.7. Spawning/egg take plans, mating protocol - Approximately 510 females (m/f ratio is variable, generally more males than females 65:35 or 60:40) will be spawned, representative of the run, which will provide enough eyed eggs to meet egg requests (Based on most recent five year average fecundity 4,809 of 525 females produces 2,453,000 green eggs at average 86% eye-up). Spawning protocol is random 1: 1 with two female's eggs combined prior to water hardening of eggs. Hagerman NFH will receive 1,480,000 eyed eggs; Magic Valley FH will receive 140,000 and the SBT 500,000 for a total of 2,120,000 eyed eggs. Eggs in excess may be provided to Hagerman Sate FH. *Brent Snider*

1.2.1.8. Egg incubation - Prior to incubation, all eggs will be water hardened and disinfected with PVP iodine per product label. Prior to transport, eggs will receive a flush with formalin iodophor three times per week during incubation. Only eyed eggs will be transferred to Hagerman NFH and Magic Valley FH due to concerns with transfer of fish pathogens between stations. After eggs manifest a strong "eye" the eggs are sorted and enumerated mechanically. *Doug Munson*

1.2.1.9. Juvenile fish health - Does not apply. These fish are reared at Magic Valley FH and Hagerman NFH.

1.2.1.10. Communication - Coordination of eyed egg shipments among the hatcheries is discussed weekly. Weekly communication for egg delivery status is undertaken with SBT Biologists. Twice weekly, run status is updated on the IDFG Webpage. Weekly summaries are provided to interested parties via e-mail. Eyed egg requests are finalized at the annual AOP meeting. *Brent Snider*

1.2.2 E.F. Salmon River

Due to low numbers of returning hatchery- and natural-origin steelhead to the East Fork Salmon River trap, the juvenile release target of 50,000 was increased to 170,000 for BY09. To achieve this release goal, approximately 45 pair of hatchery- and natural-origin adult steelhead are needed at the East Fork Trap. In order for the natural environment to drive selection in this population, natural-origin steelhead will be preferentially selected for broodstock over hatchery-origin returns. In the absence of sufficient numbers of natural origin returns, hatchery-origin adults will be incorporated into the broodstock. Adults trapped in excess of broodstock needs will be released above the velocity barrier for natural spawning. *Brian Leth*

1.2.2.1. Projected adult return – No estimate available. *Brent Snider*

1.2.2.2. Ladder operation - Ladder and trap operations will begin the last week of March and continue until early May. Once the velocity barrier is in place, fish swim into attraction water into a holding area and are sorted daily. *Brent Snider*

1.2.2.3. Adult fish health - Adult steelhead monitoring will be conducted during spawning by the EFHL. Broodstock inspections will collect ovarian fluid (120 samples) and tissue (kidney/spleen; 30 samples) samples to assay for viral replicating agents from up to 150 females. Spawning crews will collect up to 60 kidney samples for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adult Steelhead and examined for *Myxobolus cerebralis*. *Doug Munson*

1.2.2.4. Adult outplanting/marking - Released fish are opercle punched to identify possible recaptures. All unmarked steelhead trapped are tissue sampled for genetic data. *Brent Snider*

1.2.2.5. Carcass disposition - Spawned out carcasses are provided to Tribal food programs or returned to Sawtooth FH, kept frozen, and disposed of in the local landfill. Due to whirling disease amplification issues, carcasses will not be used for nutrification of local waters. *Brent Snider*

1.2.2.6. Adult monitoring and evaluation - Similar to M&E at Sawtooth FH, except fish are checked daily and spawning occurs whenever there are ripe females and ripe males available. To assess the utility of genetic parentage based analysis, tissue samples will be collected from all steelhead trapped whether spawned or released above the weir. Any adipose fin clipped fish are killed and checked for CWT. *Brent Snider*

1.2.2.7. Spawning/egg take plans, mating protocol - Continuing with the Natural Steelhead Program that began in 2001, the plan for trapping and spawning returning steelhead in 2009 is to retain enough eggs taken from Hatchery-Origin steelhead (designated as H-O by presence of a Coded Wire Tag or frayed fins from hatchery rearing) enhanced with a component of steelhead eggs taken from Natural-Origin steelhead (designated as N-O by lack of tag present and unmarked or undamaged fins) to produce 170,000 smolts for the East Fork Weir Release Group (EFWRG) of non-adipose fin-clipped smolts. Anticipating a lower egg-to-smolt survival conversion of natural steelhead reared in a hatchery than that

of hatchery steelhead, the target egg take was increased to 220,000 steelhead eggs to achieve the target of 170,000 smolts. During spawning we will favor and incorporate natural steelhead genetics over the hatchery produced fish. Spawning occurs when ripe fish are available. Green eggs are brought to Sawtooth FH for incubation and sent to Hagerman National FH for final incubation and rearing. (Check on US v Oregon language if applicable). *Brent Snider*

1.2.2.8. Egg incubation - Prior to incubation; all eggs will be water hardened and disinfected with PVP Iodiphor per product label. After eggs manifest a strong “eye” the eggs are sorted and enumerated mechanically. Smolts are released into the pool above the velocity barrier. *Brent Snider*

1.2.2.9. Juvenile fish health - Does not apply, rearing occurs at Hagerman NFH.

1.2.2.10. Communication - Coordination of eyed egg shipments among the hatcheries is discussed weekly. Eyed egg requests are finalized at the annual AOP meeting. Weekly communications occurs with IDFG research, IDFG Salmon Region personnel, and SBT. *Brent Snider, Lytle Denny*

1.2.3 Upper Salmon River B-program (Squaw Creek)

In an effort to provide large, predominantly 2-ocean (B-Run) returning adult steelhead to the upper Salmon River, progeny from steelhead spawned at Dworshak Fish Hatchery have been released into sites in the upper Salmon River. Beginning in 1999, an effort to establish locally adapted B-run steelhead in the upper Salmon River was initiated at Squaw Creek. The goal was to phase out the practice of releasing progeny from adults spawned at Dworshak Fish Hatchery and replace them with progeny produced from a locally adapted Upper Salmon B-run stock (USB). Lack of a permanent trapping facility at Squaw Creek and high harvest rates of returning adults has limited our ability to collect sufficient broodstock to replace the Dworshak releases. In 2009, we have initiated a plan to move this program forward by moving the broodstock collection to the Pahsimeroi Fish Hatchery. This facility has a structurally secure weir that can be kept in operation through the entire spawning migration. Plans are to release 120,000 USB smolts annually at the Pahsimeroi facility to serve as broodstock when they return as adults. To differentiate between the Pahsimeroi stock, all 120,000 USB smolts will have intact adipose fins but will be 100% Coded Wire Tagged (CWT). This marking strategy will allow not only differentiation between the two stocks but will also allow the USB fish to escape mark selective fisheries. We estimate that the combination of utilizing a good trapping facility and marking strategy will be sufficient to return enough adults to completely replace the Dworshak outplants in the upper Salmon River with a locally adapted USB stock.

Approximately 120-140 pair of B-run steelhead adults are needed annually to provide eyed eggs (Table 14) for smolts to be released into the upper Salmon River. *Brian Leth*

1.2.3.1. Projected adult return - The forecast for adult 2-ocean steelhead returning to Squaw Creek in 2009 is not available at this time. *Carl Stiefel*

1.2.3.2. Ladder operation - A weir and trap box will be put into place in Squaw Creek approximately 200 meters upstream of the confluence of Squaw Creek and the Salmon River. Trapping occurs from late March through early May. Heavy springtime runoff and freezing temperatures can have an effect on the weir and trap operation and must be monitored daily. Also, an angler volunteer program is being incorporated to aid in the collection of broodstock. Trap boxes are placed in the main Salmon River below Squaw Creek where anglers can deposit fish. *Brent Snider*

1.2.3.3 Adult fish health - Adult steelhead monitoring will be conducted during spawning by the EFHL. Broodstock inspections will collect 120 ovarian fluid and 30 tissue (kidney/spleen) samples to assay for viral replicating agents from up to 150 females. Spawning crews will collect up to 60 kidney samples for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adult steelhead to examine for *Myxobolus cerebralis*. *Doug Munson*

1.2.3.4. Adult outplanting/marking - If the fish is a female larger than 75 cm in length or a male larger than 79 cm in length, then these fish are considered B-run steelhead. All marked B-run fish are taken to the East Fork facility for spawning. These fish receive a unique external mark to differentiate from East Fork steelhead. Fish not meeting the criteria for B-stock fish are considered A-stock fish. These fish are examined for CWT. If a CWT is present, the snout is taken and the carcass brought to Sawtooth FH. If no CWT is detected, then unmarked fish are released into Squaw Creek above the weir. Marked fish not meeting the size criteria are released into the Salmon River after receiving another identifying mark. All unmarked fish are released above the Squaw Creek weir. Genetic material samples are collected from all unmarked fish trapped at the weir and 100% of the marked B-run fish taken to the East Fork facility and spawned for broodstock. *Carl Stiefel/Brent Snider*

1.2.3.5. Carcass disposition - Spawned out carcasses are made available first to charitable organizations and Tribal programs. Secondly, excess, unspawned, and spawned-out fish are given to the public on a first-come-first-served basis. Due to whirling disease amplification issues, carcasses will not be used for nutrification of local waters. *Brent Snider*

1.2.3.6. Adult monitoring and evaluation - All fish are measured, examined for gender, various clips, radios, CWT, injuries, and readiness to spawn. Genetic material samples are collected from all unmarked fish trapped at the weir and 100% of the marked B-run fish taken to the East Fork facility and spawned for broodstock *Brent Snider*

1.2.3.7. Spawning/egg take plans, mating protocol - All B-run hatchery fish are spawned following a 1f:2m mating protocol. Females eggs are separated into two equal portions then fertilized with two individual males. Male selection preference; first is in-basin 2-ocean B-program, second is out-of-basin 2-ocean B-run, and third is in-basin 1-ocean male (> 68 cm with proper CWT code). Eggs are incubated at Sawtooth FH and shipped as eyed eggs to Magic Valley FH for final incubation and rearing. Production depends on how many

broodstock are available, (660,000 smolts release – 120-140 pair B-run) and backfill with Dworshak stock. *Brent Snider*

1.2.3.8. Egg incubation - Prior to incubation; all eggs will be water hardened and disinfected with PVP Iodine per product label. After eggs manifest a strong “eye” the eggs are sorted and enumerated mechanically.

1.2.3.9. Juvenile fish health - NA

1.2.3.10. Communication - IDFG Research assists Sawtooth FH personnel in developing trap management plans. Egg production and shipments are coordinated between Sawtooth FH and Magic Valley FH. *Carl Stiefel/ Brent Snider*

1.2.4 Hagerman National Fish Hatchery

The Hagerman NFH LSRCP goal is to provide adult returns for lower river fisheries and return 13,600 adult steelhead over Lower Granite Dam and back to the Snake River Basin. Prior to 2009, eggs for the program were obtained from adult returns spawned at Sawtooth FH, Pahsimeroi FH, Dworshak NFH, and in times of need, Oxbow FH. The fish are reared from eyed eggs to smolts at Hagerman NFH, and transported for direct stream release at multiple sites in the Salmon River drainage. In order to simplify steelhead rearing in the Hagerman Valley Fish Hatcheries and take advantage of available rearing containers, we changed which stocks of fish are reared at Hagerman National and Magic Valley fish hatcheries. Beginning in 2009, all Sawtooth A stock released at Yankee Fork, Sawtooth Hatchery and Tunnel Rock as well as the East Fork Naturals released in the E.F. Salmon River will be reared at Hagerman National Fish Hatchery. *Brian Leth*

1.2.4.1 Egg incubation - Hagerman NFH will request and disinfect Sawtooth A and East Fork Naturals eyed eggs from Sawtooth FH (Table 14). Eyed steelhead eggs will be shipped between 370 and 450 TUs. Shipments will occur in May and June 2009. Egg shipments and deliveries will be coordinated with Sawtooth FH and Magic Valley FH. *Nate Wiese/Brent Snider/Rick Lowell/Jerry McGehee.*

1.2.4.2. Nursery Rearing - Eyed eggs are loaded into upwelling incubators at 20,000 to 30,000 eggs per jar with a flow rate of 6 to 8 gallons per minute (gpm). The Sawtooth stock will be reared in Hatchery Building 1, and the East Fork Naturals and Sawtooth stock will be reared in Hatchery Building 2. Sac fry are transferred from incubators into indoor rearing tanks and feeding is initiated when 80% of the fry achieve swim-up. Feeding typically begins 15 to 17 days post-hatch. Dry salmon diets are fed at a minimum frequency of once per hour during rearing in the hatchery buildings. Flows in rearing tanks are ramped up to, and then maintained at, 60 gpm. Fish are reared inside to a maximum density index of 0.80 and a maximum flow index of 1.00. Fish are marked from the Hatchery buildings in August at approximately 100 fpp and ponded in final rearing raceways. *Nate Wiese*

1.2.4.3. Outside Rearing - Once outside, fish are hand-fed the Hagerman Diet, a dry extruded floating salmon diet specified by the Abernathy Fish Technology Center. Feeding duration varies by fish and feed size from as high as six times per day, to as low as two times per day. Once fish reach 20 fpp, all fish are fed a dry extruded floating diet which is placed into demand feeders twice weekly. The NOAA Fisheries 180 to 250 mm length at release criteria is met by adjusting the hatchery constant. Previous FCR rates are used to project fish sizes over the grow-out period. This avoids the need to crowd and stress fish for periodic sample counts. IDFG staff PIT tag a representative group of fish from each stock being reared. *Nate Wiese*

1.2.4.4. Juvenile fish health - Juvenile fish health monitoring is conducted monthly, except when there are no fish on station, and diagnostic exams are performed as needed. The Idaho Fish Health Center performs these tasks. Pre-liberation inspections are performed at least two weeks prior to the first day of liberation. Prior to release, a 60 fish sample is taken and assayed for IHNV, IPNV, VHSV, *Aeromonas salmonicida*, *Yersinia ruckerii*, *BKD* and *Myxobolus cerebralis*. Fish health exam forms are provided to the hatchery as well as a summary at year-end. *Kathy Clemens*

1.2.4.5. Planned juvenile marking & tagging, release sites - Numbers of fish marked, mark type, and release location are established by the co-managers which incorporates other agreements and processes such as US vs. Oregon. There are some concerns at Hagerman as to post marking mortality and alternative marking strategies will be evaluated at this facility in the future. The Hatchery anticipates release numbers of: 1,290,000 Sawtooth A, and 170,000 East Fork Naturals. In addition, a representative number of fish from each release site receives PIT tags (January 2010). Marking and tagging must occur in mid August 2009. Marking is coordinated with Niagara Springs FH, Magic Valley FH, and the IDFG Marking Crew. *Nate Wiese/Tom Rogers/Jerry Chapman/Rick Lowell /Bryan Kenworthy/*

1.2.4.6. Juvenile monitoring and evaluation - The IDFG performs CWT, PIT, and smolt-to-adult return evaluations. 350,000 fish will be tagged with CWT in the summer of 2009; this includes 170,000 fish from the East Fork Natural program (CWT only). CWT's will be used to measure adult contribution to fisheries, as well as evaluate total adult returns by release group. CWT's for the BY2009 Sawtooth release group will be divided equally into first-use and third-use rearing water to compare smolt-to-adult survival against rearing conditions. Fish will be PIT tagged to evaluate juvenile outmigration success and provide adult return estimates to Lower Granite Dam. Expectations for brood year 2009 PIT tagging include approximately 18,700 from LSRCF funding. The CSS project will likely contribute an additional 8,200 PIT tags. *Carl Stiefel/ Tom Rogers/Nate Wiese/Bryan Kenworthy/Ray Jones*

Shoshone-Bannock Tribes (SBT) – DNA Parentage Exclusion Analysis: Steelhead smolt will be reared separately from general production fish as part of the SBT long-term Monitoring and Evaluation Plan (Denny et al 2006). The SBT is conducting an experimental study on the efficacy of releasing steelhead smolts for supplementation in the Yankee Fork Salmon River. The study includes a DNA parental exclusion analysis, as

described by Jones and Ardren (2003) to differentiate F₂ juvenile and adult steelhead produced by releasing F₁ smolt that return to spawn naturally. Sawtooth FH parental broodstock will be genotyped and used to supply eyed eggs (supplementation fish) reared to smolt at Hagerman NFH smolts will be released in Yankee Fork in the spring. F₁ adults will return to Yankee Fork and spawn naturally with other steelhead present. The SBT will capture F₂ progeny at a rotary screw trap in Yankee Fork and determine the efficacy of the smolt supplementation strategy using DNA genotyping through grandparentage analysis of unknown matings (Letcher and King 2001). Future evaluations will include determination of how many adults were produced at the F₁ and F₂ generations. *Lytle Denny*

1.2.4.7. Communication - Hagerman NFH distributes a monthly hatchery production summary, a monthly narrative, and an annual report. Hagerman NFH evaluates production programs through a Hatchery Evaluation Team (HET). The HET meets quarterly to plan and coordinate specific studies and program changes or adjustments. The HET will need to review and approve any requests for a particular brood year in advance. *Bryan Kenworthy/Ray Jones/Nate Wiese/Carl Stiefel*

1.2.5 Magic Valley Fish Hatchery

The Magic Valley FH LSRCP adult mitigation return goal is to provide adult returns for lower river fisheries and 11,660 adult steelhead over Lower Granite Dam and back to the Snake River Basin. To attain that goal, the planned production is: 670,000 Pahsimeroi/Sawtooth A; 890,000 Dworshak B; and 60,000 Upper Salmon B smolts (the actual goal for the Upper Salmon B release is 120,000 smolts but we are unsure if broodstock needs will be met. If they are met, an equivalent number of Dworshak B eggs will need to be culled to account for the 60k increase of USB smolts. This will be necessary to keep the hatchery at capacity). See Table 1 for release locations. Eyed eggs (Table 14) for the program are obtained from adults trapped at Sawtooth FH, Pahsimeroi FH, Dworshak NFH, and Squaw Creek Trap. All stocks are reared to smolt size at Magic Valley FH and transported for direct stream or acclimated release at multiple sites in the Salmon River.

In order to simplify steelhead rearing in the Hagerman Valley Fish Hatcheries and take advantage of available rearing containers, we changed which stocks of fish are reared at Hagerman National and Magic Valley fish hatcheries. Beginning in 2009, all Dworshak and Upper Salmon River B stocks will be reared at Magic Valley Hatchery. Additionally, all Pahsimeroi A steelhead not reared at Niagara Springs Fish Hatchery will be reared at Magic Valley Hatchery. *Brian Leth*

1.2.5.1. Egg incubation - Magic Valley FH will request numbers somewhat different to BY2008. As a result of a continued reduction in water flow (>25%), production numbers for BY2009 remain approximately twenty percent lower from the original target of two million smolts. Transfer of eggs should occur between 370 and 450 TUs. As a result of the completion of the new Pahsimeroi Hatchery, eggs received from Pahsimeroi may arrive later due to their ability to incubate with chilled water. Delayed transfer of eggs is beneficial because fish will be off feed for fewer days during the final rearing period. To

further ensure egg quality, it is recommended that eggs taken at Pahsimeroi Hatchery remain on station until eyed. Egg shipments and deliveries will be coordinated with Sawtooth FH, Pahsimeroi FH, and Clearwater FH. *Brent Snider/Rick Lowell/Jerry McGehee/Todd Garlie*

1.2.5.2. Nursery Rearing - Eyed eggs are loaded into upwelling incubators at 50,000 to 65,000 eggs per jar with a flow rate of 6 to 8 gpm. All stocks are reared in the incubation building. Sac fry volitionally swim from incubators into indoor rearing tanks and feeding is initiated when approximately 100% of the fry achieve button-up. Feeding typically begins 18 to 21 days post-hatch. Rangen's semi-moist starter salmon diets are fed at a minimum frequency of once per hour during rearing in the hatchery building. After feed size zero, all early rearing diets are changed to dry feed. Starting flows in rearing tanks are set at 100 gpm, and then increased up to 250 gpm prior to transfer to outside raceways. Fish are reared inside to a maximum density index of 0.60 and a maximum flow index of 1.19. Fish are transferred at approximately 30,000 fish per outside section for a total of 52 sections. Transfer to outside raceways is scheduled to begin in mid to late July and completed by early September. Fish will range in size from 115 to 250 fpp. *Rick Lowell*

1.2.5.3. Outside Rearing - The upper decks are used for initial outside rearing. Screens are placed at the fifty foot keyway and the upper 100 foot section is divided into two rearing sections. Approximately thirty thousand fish will be placed in each section. Once outside, fish are hand-fed Rangen's #3 and #4 crumble (Hatchery personnel may experiment with a 1/16th extruded pellet for BY2009) then graduate to larger sizes as growth continues. For approximately the last seven months of growth, smolts are fed Rangen's 470 extruded slow sinking feed. Feeding duration varies by fish and feed size from as high as six times per day, to as low as three times per day. When fish approach density indexes of 0.30, inventory in the lower 50 feet of the A deck, they will be moved to the lower 100 feet (B section) and the inventory in the upper 50 feet will have the entire A section for the final rearing period. The NOAA Fisheries 180 to 250 mm length at release criteria is met by adjusting the hatchery constant. Sample counts are performed monthly on representative ponds and length frequencies are calculated prior to release. Depending on funding, expectations for brood year 2009 PIT tagging may be similar to brood year 2008. *Rick Lowell*

1.2.5.4. Juvenile fish health - Fish health inspection and diagnostic services will be provided by the EFHL. Diagnostic services will be provided as needed at the request of hatchery personnel. Quarterly on-site inspections will include tests for the presence of viral replicating agents and general bacterial pathogens. A pre-liberation inspection will be done on all stocks 30-45 days prior to transportation, including an *organosomatic* index of fish quality. Specific pathogens tested for at pre-liberation will include IHNV, IPNV, VHSV, *Renibacterium salmoninarum*, *Aeromonas salmonicida*, *Yersinia ruckerii*, and *Myxobolus cerebralis*. *Doug Munson*

1.2.5.5. Planned juvenile marking & tagging - Numbers of fish marked, mark type, and release location are established by the annual IDFG Steelhead Mark Plan which incorporates other agreements and processes such as US vs. Oregon. Projected hatchery

spring flows will continue to influence production numbers for BY2009. If spring flow trends continue to decrease, a proportional decrease in production is recommended. Other measures such as oxygen injection or aeration may be addressed to offset reduction in flows as well. As a result in a production exchange with Hagerman National Hatchery, numbers will differ from the BY2008 mark plan. Tentatively, numbers marked will be: 120,000 AD clipped Sawtooth A, 890,000 AD clipped Dworshak B, 530,000 AD clipped Pahsimeroi A, and 60,000 AD clipped Upper Salmon B. In addition, a representative number from each release site receives PIT tags. Adipose fin clipping is tentatively scheduled to begin in late July and should be completed by early September. If fish are large enough (<150/lb), coded-wire-tagging will be accomplished concurrently with adipose clipping. Typically the Upper Salmon B Stock is marked in September due to the later arrival of eggs. Timing of marking is set up at the Salmon River Basin spring meeting. Marking is coordinated with Niagara Springs FH, Hagerman NFH, and the IDFG Marking Crew. *Sam Sharr/Jerry Chapman/Rick Lowell/ Bryan Kenworthy/Nate Wiese*

1.2.5.6. Juvenile monitoring and evaluation - The IDFG performs CWT, PIT tagging, and smolt to adult return evaluations. Coded-wire tags will be used to measure adult contribution to fisheries, as well as evaluate total adult returns by release group. Fish will be PIT tagged to evaluate juvenile outmigration success and provide adult return estimates to Lower Granite Dam. Expectations for brood year 2009 PIT tagging include approximately 26,300 from LSRCP funding. The CSS project will likely contribute an additional 11,350 PIT tags. *Carl Stiefel*

1.2.5.7. Communication - Magic Valley FH distributes monthly hatchery production summaries and annual reports. These will be sent to IDFG Fisheries Bureau personnel, Doug Burton (EFHL Pathologist), and the LSRCP office coordinator. Monthly summaries and annual reports will be made available to the contact list (Section 5) by request. Magic Valley FH evaluates production programs through a LSRCP funded hatchery evaluation biologist stationed at the Nampa Research station. *Rick Lowell*

1.2.6 Shoshone Bannock Tribes Egg Box Program

The SBT developed supplementation activities aimed at improving the viability of natural steelhead populations. One million eyed steelhead eggs (Table 14) will be outplanted in three Upper Salmon River tributaries: 1) Yankee Fork; 2) Indian Creek; and 3) Panther Creek. Eyed-eggs for Yankee Fork will come from Sawtooth FH and eyed-eggs for Indian Creek and Panther Creek will come from Pahsimeroi FH. Upon eye-up, eggs will be transferred to remote incubators where they are incubated on river water to mimic natural hatch timing in the system. *Lyle Denny/Kurt Tardy*

1.2.6.1. Planned juvenile marking/tagging, release sites — Stream-side incubator (SSI) juveniles will be marked through Parental Based Tagging (PBT). SSI juveniles destined for Yankee Fork are indirectly marked because their parents are tissue sampled during spawning. Approximately 500,000, 100,000, and 400,000 eyed-eggs will be planted in Yankee Fork, Indian Creek, and Panther Creek, respectively. Approximately 234 pairs of upper Salmon Group-A summer steelhead are necessary to achieve 1,115,244 green eggs or

approximately 1.0 million eyed eggs to support the SBT SSI program in the upper-Salmon. *Lytle Denny/Kurt Tardy*

1.2.6.2. Ladder operation – Adult trapping will be conducted at Sawtooth and Pahsimeroi Fish Hatcheries. See Sawtooth 1.2.1.2 and Pahsimeroi 1.2.8.2. *Lytle Denny/Kurt Tardy*

1.2.6.3. Adult fish health – Adult fish will be spawned at Sawtooth and Pahsimeroi Fish Hatcheries. See Sawtooth 1.2.1.3 and Pahsimeroi 1.2.8.3. *Lytle Denny/Kurt Tardy*

1.2.6.4. Adult outplanting/marking - Adult outplanting/marking will occur at Sawtooth and Pahsimeroi Fish Hatcheries. See Sawtooth 1.2.1.4 and Pahsimeroi 1.2.8.4. *Lytle Denny/Kurt Tardy*

1.2.6.5. Carcass disposition – Carcasses may be given out at Sawtooth and Pahsimeroi Fish Hatcheries. See Sawtooth 1.2.1.5 and Pahsimeroi 1.2.8.5. *Lytle Denny/Kurt Tardy*

1.2.6.6. Spawning/egg take plans, release sites - Spawning and mating protocols are consistent with those at Sawtooth and Pahsimeroi FH. The SBT will receive 500,000 eyed eggs from Sawtooth A and 500,000 eyed eggs from Pahsimeroi A for a total of 1,000,000 eyed eggs. Egg incubators, otherwise known as upwellers, will be constructed in remote locations. *Lytle Denny*

1.2.6.7. Monitoring and evaluation – DNA tissue samples are collected from all spawned steelhead at Sawtooth FH and Pahsimeroi for supplementation. Eggs obtained from Sawtooth A hatchery stock will be placed into upwellers in and Yankee Fork. Eggs obtained from Pahsimeroi A hatchery stock will be placed into upwellers in Panther, and Indian Creeks.

Upwellers will be monitored weekly to assure flow is constant throughout the system. Data will be collected for date, time, water temperature, dissolved oxygen, conductivity, pH, flow velocity, sediment accumulation, life stage, and comments. Dead eggs are enumerated after total volitional fry emigration into catch tanks to estimate hatch success. Under the SBT monitor and evaluation plan, three-pass removal electrofishing studies are conducted in stratified reaches throughout the Yankee Fork Salmon River (YFSR) to collect genetic tissue samples and preliminary density and population estimates. A screw trap will be used in the lower Yankee Fork to collect migrating juveniles. Fork length and mass of each individual will be recorded. Tissue samples from both 0+ and 1+ age *Oncorhynchus mykiss* are transferred to the Abernathy Fish Technology Center for full parental genotyping to identify hatchery-origin fish outplanted as eggs in the YFSR. Genetic parentage analysis will evaluate the relative abundance of hatchery-origin and natural-origin juvenile steelhead in the YFSR. Relative abundance will be measured as the proportion of parr produced from streamside incubators relative to natural-origin parr encountered in the sample. Proportions will be scaled by the estimated number of eggs planted or produced naturally, and the corresponding egg-to-hatch survival rates. Panther Creek and Indian Creek will be monitored through snorkeling and/or electroshocking to document changes in density and dispersal (treatment effect). In addition, several unknown

tributaries will also be monitored to compare differences in treatment and control tributaries. *Lytle Denny/Kurt Tardy*

1.2.6.8. Egg incubation - Same procedures and guidelines for Sawtooth and Pahsimeroi Fish Hatcheries through eyed egg stage (see Sawtooth 1.2.1.8 and Pahsimeroi 1.2.8.8.) However, once placed into in-stream upwellers, incubation will occur on stream water in the natural environment.

1.2.6.9. Juvenile fish health – Does not apply, these fish are reared on stream water in the natural environment.

1.2.6.10. Communication - Pahsimeroi FH, Sawtooth FH, and SBT personnel will coordinate to determine a schedule to obtain and transfer eyed eggs. Results and conclusions from the streamside incubation project will be presented in an annual report. *Lytle Denny*

1.2.7 Niagara Springs Fish Hatchery

IPC's mitigation goal at Niagara Springs FH is to annually produce 400,000 pounds of healthy steelhead smolts. This equates to approximately 1.8 million smolts at a mean size of 4.5 fpp. Eyed eggs (Table 12) for the program are obtained from adult returns spawned at Pahsimeroi FH and Oxbow FH. The fish are reared from eyed eggs and swimup fry to smolts at Niagara Springs FH, and released into the Pahsimeroi River below the Pahsimeroi FH weir, into the Snake River below Hells Canyon Dam, and into the Little Salmon River at Stinky Springs or Hazard Creek. *Jerry Chapman*

1.2.7.1. Egg incubation Niagara Spring FH will request a total of 1,104,000 Pahsimeroi stock eyed eggs and fry from Pahsimeroi FH (Table 14). One-half of the eggs collected at Pahsimeroi FH for IPC's mitigation program will be retained for incubation on chilled well water to retard their rate of development. These will be shipped as swimup fry from the Pahsimeroi FH in June, 2009. The other half of the Pahsimeroi eggs will be collected at the Pahsimeroi FH and incubated on chilled water at the Pahsimeroi FH, then shipped to Niagara Springs as eyed eggs. In addition, Niagara Springs FH will request 440,000 Oxbow-A eyed eggs and 440,000 Oxbow-A swimup fry from Oxbow FH (Table 14). Eyed eggs from both facilities will be shipped to Niagara Springs FH in June, 2009 (at approximately 400 TUs) and placed in upwelling incubators inside the hatchery building. Swimup fry will be received in June, 2009 (at approximately 950 TUs) and ponded directly into the outside raceways. *Jerry Chapman*

1.2.7.2. Nursery Rearing - Upon arrival at Niagara Spring FH, eyed eggs will be disinfected with Iodine at 100-ppm for 30 minutes prior to tempering and placing in upwelling incubators. Loading densities in the incubators will range from 20,000 to 55,000 eggs, depending on water availability. Incubator flows will range between 20 to 25 gpm, depending on water availability, while flows in vats will approach 50 gpm. Maximum flow indices should not exceed 0.8 , while density indices will peak at 1.13 lbs/ft³/in. in the hatchery building even if we continue to only take ½ of total egg request as eggs and ½ as

fry. (Swimup fry attain a density index of .57 lbs/ft³/in when they leave the incubators for the vats.) Fry are transferred outside when they are between 1,100 and 1,300 fpp. Swimup fry will be tempered in the hauling trailer prior to ponding directly into the outside nursery raceways. Fish hatched at Niagara Springs FH from Oxbow-A eyed eggs will be transferred from indoor vats to nursery raceways 1 and 3 when they reach approximately 2,000 fpp. Oxbow-A fry will be ponded directly into nursery raceways 5 and 7 at 950 TUs. Fish hatched from Pahsimeroi-A eyed eggs and Pahsimeroi-A swimup fry will be ponded in the remaining six nursery raceways, 9 through 19, at similar sizes and TUs, respectively. Rearing space will be increased as fish grow and their density index approaches 0.30 lbs/ft³/in. Fry will be hand-fed Rangen's dry feed in the indoor nursery areas. Hand-feeding will occur at least once per hour and will be supplemented by Zeigler belt feeders.

Jerry Chapman

1.2.7.3. Outside rearing - Fish are reared in three banks of raceways at a maximum density index of 0.35 lbs/ft³/in and a maximum flow index of 0.9 lbs/gpm/in. As densities increase in the nursery sections, screens are removed and fish are allowed to move down to the next screened raceway bank. Once the nursery area is lengthened to the 200-ft mark, AD-clipping begins and fish are evenly distributed into all raceways. Steelhead are fed Rangen's dry feeds throughout the early rearing period at Niagara Springs FH. Feed is dispensed by hand-feeding and supplemented with Ziegler belt feeders in the outdoor nursery areas. When fish reach 75 fpp, they are switched to Rangen's slow-sinking 470 extruded diet to allow staff to utilize two bulk tanks, a feed conveyor system, a fines separator and bridge feeders.

A length at release standard of 180 to 250 mm is established under the NOAA Fisheries 1999 Biological Opinion. The BY2008 steelhead are projected for an average size of 220 mm. This will be accomplished by holding the fish off feed and receiving eggs from later spawn dates to decrease fish size and minimize days off feed. Sample counts are performed bimonthly on representative raceways until December and then performed once per month until release. Length frequencies are checked periodically during outside rearing. Dissolved oxygen is monitored during periods of peak loading. Water temperature remains a constant 59°F. *Jerry Chapman*

1.2.7.4. Juvenile fish health - Fish health inspection and diagnostic services will be provided by personnel at the Eagle Fish Health Laboratory (EFHL). Diagnostic services will be provided as needed at the request of hatchery personnel. Quarterly on-site inspections will include tests for the presence of viral replicating agents, *Renibacterium salmoninarum* (RS) and other pathogens. To control low levels of coldwater disease (*Flavobacterium psychrophilum*) that typically show up in January, a ten-day treatment with medicated feed (Oxytetracycline) was administered during February and March, 2008. A minimum of 50% of the juveniles will receive an *Aeromonas salmonicida* vaccination bath at an approximate size of 2 grams/fish. A pre-liberation inspection of 60 fish from each stock (Pahsimeroi-A and Oxbow-A) including an organosomatic index of fish quality, will be done on all lots 30-45 days prior to transportation. Specific pathogens tested for at pre-liberation will include IHNV, IPNV, VHSV, RS, *Aeromonas salmonicida*, *Yersinia ruckerii*, and *Myxobolus cerebralis*. *Doug Munson*

1.2.7.5. Planned juvenile marking & tagging, release sites - Numbers of fish marked, mark type, and release locations are established by the annual IDFG Steelhead Mark Plan. Generally, numbers marked break out as follows: all BY2009 steelhead at Niagara Springs FH will be AD-clipped. A total of 20,000 CWTs will be implanted in Oxbow-A steelhead destined for stocking below Hells Canyon Dam and 20,000 CWT's will also be implanted into Oxbow-A fish destined for the Little Salmon River. A total of 20,000 CWTs will be implanted into Pahsimeroi-A fish destined for the Little Salmon River. Pahsimeroi-A steelhead that will be stocked back into the Pahsimeroi River will receive 30,000 CWTs. In addition, approximately 25,000 fish will receive PIT tags for distribution as follows: 8,000 Oxbow A for the Snake River, 4,000 Oxbow A for the Little Salmon River, 2,600 Pahsimeroi A for the Little Salmon River, and 10,400 Pahsimeroi A for the Pahsimeroi River. AD-clipping and CWT tagging will probably occur the second or third week of September, 2009. Marking is coordinated with Hagerman NFH, Magic Valley FH and the IDFG Marking Crew. PIT tagging will probably occur in January, 2010. Release inventories exceeding 10 percent of the allocation for the Little Salmon River drainage will be released there or retained at the hatchery for outplanting in agreed non-anadromous waters. *Jerry Chapman*

1.2.7.6 Juvenile monitoring and evaluation - The IDFG performs CWT, PIT tag and smolt-to-adult-return evaluations. CWTs will be used to measure adult contribution to fisheries, as well as evaluate total adult returns by release group. IPC will likely contribute 1,200 PIT tags to evaluate juvenile migration success. The CSS project will likely contribute an additional 24,000 PIT tags. *Jerry Chapman*

1.2.7.7. Communication - Niagara Springs FH distributes monthly hatchery production summaries, monthly hatchery narratives and annual reports. These are currently not sent to the Contact list (Section 5), but are maintained at the hatchery and IDFG headquarters and are available by request. Niagara Springs FH program objectives are discussed at the Salmon River AOP, IDFG Anadromous Meetings, hatchery manager meetings and additional meetings to discuss and resolve any issues. In addition, the IPC hatchery biologist and IDFG anadromous hatcheries supervisor maintain close contact with the hatchery manager and staff for consultation as problems arise. *Jerry Chapman*

1.2.8 Pahsimeroi Fish Hatchery

IPC's mitigation goal for steelhead production at Pahsimeroi FH is to take up to 1,472,000 green eggs for transfer to Niagara Springs FH. Approximately 288 pairs of adult steelhead broodstock are needed to meet the egg take goal. Pahsimeroi FH also traps and spawns additional adult steelhead to provide eyed eggs for the SBT egg box program and for the LSRCP programs at Magic Valley FH (Table 14). These additional eggs require the spawning of another 273 pairs of adult steelhead to accomplish this task. *Todd Garlie*

1.2.8.1. Projected adult return -Based on dam counts and check station data, the Brood Year 2009 projection is 4,811 returning adults (90.0% CI – 4,811 ± 2,050). Jon Hansen

says low harvest in the fall may result in hatchery returns much higher than estimates. *Todd Garlie*

1.2.8.2. Ladder operation - Trapping will begin on February 20, 2009 and proceed through mid-May or until a period when 10 days lapse and no fish are trapped (typically this lapse occurs in mid-May). The trap will be checked weekdays throughout the run. This year, all CWT fish will be dispatched the day they are trapped and all pertinent information will be recorded. Genetic and scale samples will be collected from unmarked steelhead that enter the trap and these fish will be released back into the river above the weir to spawn naturally. Genetic samples will be collected from wild rainbow trout that enter the trap and released back into the river to spawn naturally as well. This was at the request of Matt Campbell. *Todd Garlie*

1.2.8.3. Adult fish health - Adult steelhead fish health monitoring will be conducted during spawning by Eagle Fish Health personnel. Pahsimeroi FH and EFHL personnel will collect ovarian fluid and kidney/spleen tissue samples to assay for viral replicating agents from at least 150 females (120 ovarian fluid samples and 30 kidney/spleen samples). Sixty kidney samples will be collected for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adult steelhead and examined for *Myxobolus cerebralis*. *Doug Munson/Todd Garlie*

1.2.8.4. Adult outplanting/marking - If predicted rack numbers are higher than 1,500 fish, adult outplants occur from the early (March) trapped fish. If the predicted run size is less than the 1,122 needed for egg production, no adult out-plants will be done until 75% of the predicted run is trapped. No adult out-plants will occur prior to March 20, at which point, they will only occur if 20% of the predicted run is trapped and the daily trap numbers are increasing. Surplus hatchery adults are either recycled to the main Salmon River for the steelhead fishery, or out-planted to the Blue Mountain Pond in Challis, ID and the Kid's Pond in Salmon, ID. Carcasses are also provided to the SBT, the Shoshone Paiute Tribe, and welfare agencies for subsistence, or given to the public on spawn days. All steelhead recycled to the fishery or out planted from the Pahsimeroi Hatchery will be either opercule punched or caudal punched to identify recaptures. Recaptured fish will be dispatched and given to the general public or charities. All unmarked adult fish are released upstream of the weir. Genetic samples and scale samples will be collected from all unmarked steelhead and released above the weir to spawn naturally. Also this year, genetic samples will be collected from all wild adult rainbow trout that enter the trap. After genetic samples have been collected, the wild rainbows will be released above the weir to spawn naturally. *Todd Garlie*

1.2.8.5. Carcass disposition - Each day during spawning operations, carcasses will be given to the SBT, the Shoshone Paiute Tribe, the public, and to charitable organizations in accordance with IDFG policy. Current charitable organizations on file at Pahsimeroi are: American Legion in Challis, Eastern Idaho Community Action Partnership (Idaho Falls and Salmon), the Idaho Food Bank and the Montana Food Bank. Due to the limitations as to where surplus adults can be out-planted, hatchery personnel must contact and schedule charitable organizations for surplus carcass distribution. In the event a charitable entity fails

to show up for a scheduled distribution, the carcasses will be placed into a refrigeration unit.

IDFG policy does not allow disposal of steelhead carcasses into the Pahsimeroi River to supplement marine derived nutrients. Fish that are not suitable for public or charitable distribution are placed in a refrigeration unit and hauled to a rendering plant in Kuna, ID for disposal. The refrigeration unit is rented from Utility Trailer in Boise, ID and is delivered to the hatchery by IDFG employee Bob Bevelev. *Todd Garlie*

1.2.8.6. Adult monitoring and evaluation - The trap will be sorted weekdays throughout the run. At sorting, fish are examined for gender, checked for various clips, radios, CWT, injuries, and readiness to spawn. To assess the utility of genetic parentage based analysis, tissue samples will be collected from every individual adipose fin clipped fish used for broodstock in 2009. Genetic samples will also be collected from all trapped unmarked steelhead. Genetic samples will be collected from all wild adult rainbow trout that enter the trap. The genetic samples will be evaluated by Matt Campbell. *Carl Stiefel/Todd Garlie*

1.2.8.7. Spawning/egg take plans, mating protocol - Adult steelhead that are trapped and ready to spawn after March 24 will be used for primary egg production needs. Niagara Springs FH, Magic Valley FH and the SBT egg box program. A random cross section of the run will be used to maximize the genetic diversity and to maintain a wide run and spawn period.

Selecting spawners – Ripe steelhead that enter the trap on spawn days will be spawned first. Then, previously trapped fish will be sorted and ripe fish will be spawned to meet production goals. In an effort to obtain eggs from adults returning later in the run for Niagara Springs FH, to meet production needs and to shift the steelhead run and spawn timing towards historical levels, thirty five percent of eggs collected in May will be used exclusively for Niagara Springs FH production. Furthermore, no more than 10 percent of the eggs distributed to Niagara Springs FH should come from steelhead spawned in March.

Procedures for spawning - During sorting, males and females will be collected in equal numbers. The ripe females will then be killed in groups of ten using the SI-5 stunner. Each female will be individually incised and eggs will be collected in a colander, allowing excess ovarian fluid to drain off. The drained eggs will be placed in a bucket and fertilized by one male (one X one cross). The sperm will be expressed directly into the bucket of eggs. Females with poor eggs or bloody ovarian fluid will not be used for production. Males that expel bloody or watery sperm will not be used. Tissue samples for DNA analysis will be collected from all fish spawned for production purposes. Lengths will be collected during this time to determine age structure of the run.

Egg Take Plans - Current plans are to take eggs for Niagara Springs FH 1,104,000 eyed-eggs/fry (395 females), the Shoshone-Bannock Tribal egg box program, 500,000 eyed-eggs (144 females), Magic Valley Hatchery 625,000 eyed-eggs (164 females).

1.2.8.8. Egg incubation - In 2009, eggs collected for all entities will be incubated at the Upper Pahsimeroi FH. Six lots of eggs will be collected for Niagara Springs FH. The first three lots will be incubated on chilled water (46°F) and transported in fry tubes to Niagara Springs FH as swim-up fry. The remaining three lots will be incubated on 48°F water and transported by Niagara Springs FH personnel as eyed eggs. Three lots of eggs will be collected for the SBT egg box program. These eggs will be incubated on 50°F and picked up by the SBT as eyed-eggs. Two lots of eggs will be collected and incubated on 50° water for Magic Valley FH and picked up by Magic Valley FH personnel as eyed-eggs.

Once the eggs have eyed, they will be shocked twice by pouring them from the incubator trays at a distance of 18 inches into a dish pan filled with 2 inches of water. The eggs will be placed back into the incubator trays and picked and enumerated the following days using a Jensor electronic picker/counter. *Todd Garlie*

Eggs collected for incubation at the Upper Pahsimeroi FH will be watered hardened in a 100ppm solution of Argentyne at the Lower Pahsimeroi FH, placed in aquaseed tubes, then into coolers of well water and transferred to the Upper Pahsimeroi FH. Once eggs are received at the Upper Pahsimeroi FH, egg coolers will be disinfected externally with Argentyne at 100ppm for 15 minutes. Also, the eggs will be disinfected with Argentyne at 100ppm for 30 minutes. Once the eggs are disinfected, they will be tempered for 30 minutes if needed, then placed into incubation trays. Incubator trays will be loaded at the rate of 1 to 3 female's eggs per tray. Forty-eight hours after collection until eye-up, all eggs incubated at Upper Pahsimeroi FH will receive 1,667 ppm fifteen minute formalin treatments administered Mondays, Wednesdays and Fridays. *Todd Garlie*

1.2.8.9. Juvenile fish health – No juvenile steelhead are reared at this location. See section 1.2.7.4 for details for juvenile fish health plans at Niagara Springs FH. *Doug Munson/Todd Garlie*

1.2.8.10. Communication - Steelhead trapping updates are entered on the Department's database and uploaded to the K: drive weekdays throughout the run. Records of adult outplants will be uploaded to the Department's fish release database as they occur. SBT personnel will coordinate to determine a schedule to obtain and transfer eyed eggs. *Todd Garlie*

1.2.9 Oxbow Hatchery Fish Hatchery

Idaho Power Company's (IPC) current mitigation goal for steelhead production at Oxbow FH is to trap and spawn a sufficient number of adult steelhead to allow for the production of 200,000 lbs of steelhead smolts at Niagara Springs FH. To produce the minimum 1.2 million eyed-eggs/ fry necessary to reach that goal, approximately 550 adult steelhead are trapped in the fall and held over winter. An additional 50 females or 10% of the broodstock are trapped the following spring. This provides for pre-spawning mortality, culling for disease management and manipulation of run timing. It will also provides a small surplus for use at Pahsimeroi FH and Sawtooth FH in the event that returns to their

weirs do not meet production goals. Steelhead spawning occurs in the spring and the resulting eggs and swim up fry are transferred to Niagara Springs FH beginning in June.

1.2.9.1. Projected adult return - As of December 1, 2008, Oxbow FH has a total of 502 adult A-run steelhead (252 males and 250 females) on station for BY2009 production. Additional trapping is scheduled to commence in March, 2009. The 2009 steelhead run projection is not available at this time. *Kent Hills/Ralph Steiner*

1.2.9.2. Ladder operation - Fall trapping at the Hells Canyon Trap extended from October 27 to November 17, 2008. The trap operated for three days in October and six days in November. Trapping in the spring is influenced by flow in the Snake River and the resulting releases from Hells Canyon Dam. Flows in excess of 50,000 cfs at Hells Canyon Dam require cessation of trapping because the trap is inundated. At this time, spring trapping is scheduled to begin in April, 2009 and will continue into April or until the broodstock target (10% of the females) is reached. *Kent Hills/Ralph Steiner*

1.2.9.3. Adult fish health - Adult steelhead monitoring will be conducted during spawning by personnel at the EFHL. During broodstock inspections, IDFG personnel will collect ovarian fluid and kidney/spleen tissue samples to assay for viral replicating agents from at least 150 females (120 ovarian fluid samples and 30 kidney/spleen samples). Sixty kidney samples will be collected for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adult steelhead and examined for *Myxobolus cerebralis*. *Doug Munson*

1.2.9.4. Adult outplanting/markings – Depending on run strength, surplus adults may be trapped at Hells Canyon Trap. Surplus fish are distributed to Idaho, Oregon, and the Nez Perce Tribe. In the fall of 2008, the Nez Perce Tribe received 1,001 fish for subsistence/consumption. The Idaho and Oregon shares were released to supplement sport fisheries and received a left operculum punch. Idaho received 1,000 fish, which were released into the Boise River. Oregon received 1,010, which were released into Hells Canyon Reservoir. Additional out-plants may take place at agreed upon locations if excess fish are trapped in the spring of 2009. *Kent Hills/Ralph Steiner*

1.2.9.5. Carcass disposition - Carcasses from pre-spawning mortality cannot be used for in-stream nutrient enhancement due to pathology concerns and will be placed into a garbage dumpster and picked up weekly by the local sanitation company. They will be transported to the Halfway transfer station and eventually to an approved ODEQ landfill. Another option under consideration is to hold or freeze carcasses for nutrient enrichment. Carcasses for this study will be picked up for research. *Kent Hills/Ralph Steiner*

1.2.9.6. Adult monitoring and evaluation - All returning adult steelhead are scanned for CWTs and PIT tags and also scrutinized for other marks, tags, and injuries. Genetic samples are collected from all adults for Parentage Based Genetics. *Kent Hills/Ralph Steiner*

1.2.9.7. Spawning/egg take plans, mating protocols - Spawning will occur twice each week from March 12 to May 17, 2009. Eggs will be drained of ovarian fluid and fertilized with milt from one male. Females with poor egg quality or bloody ovarian fluid will not be used for production. Males that expel bloody or watery milt will not be used. Fertilized eggs from two females will then be combined for water hardening. *Kent Hills*

1.2.9.8. Egg incubation - Eggs will be incubated at regulated well water temperatures ranging from 53°F to 42°F to consolidate egg shipments to Niagara Spring FH. The incubation program at Oxbow FH may change following construction of new facilities at Pahsimeroi FH. As of December 2008 the most recent information is that incubation of Pahsimeroi eggs at Oxbow FH will not continue. All eggs will receive an iodophore flush three times a week. Oxbow-A eggs will be reared to the eyed egg or fry stage and then transferred to Niagara Springs FH or distributed as directed by the IDFG Fisheries Bureau. The 2009 surplus eggs or fry may be transferred to Hagerman State FH or reared to the fry stage and released into Cascade Reservoir. Eyed eggs are transported in coolers and button-up fry are placed inside large screened tubes, loaded onto a tank trailer or tank truck, and transported to the rearing facility or reservoir for release. *Kent Hills/Ralph Steiner*

1.2.9.9. Juvenile fish health – Juvenile steelhead are not reared at Oxbow FH. See section 1.2.7.4 for details for juvenile fish health plans at Niagara Springs FH. *Doug Munson*

1.2.9.10. Communication - During steelhead trapping, Hells Canyon Trap data will be uploaded daily to the IDFG trap record for each day the trap is operated. Adult releases will be uploaded to the IDFG release database at least weekly. In addition, weekly trap updates will be sent to the IPC hatchery biologist. *Kent Hills/Ralph Steiner*

1.3 Brood Year 2010 Steelhead

1.3.1 Oxbow Fish Hatchery

Oxbow FH is responsible for trapping and spawning sufficient steelhead broodstock to provide 440,000 eyed eggs and 440,000 swim-up fry to Niagara Springs FH. Using a 5 year average fecundity of 5,800 eggs per female and a 5 year average eye up rate of 82%, approximately 600 adult steelhead broodstock are needed to meet this goal. To represent the full spectrum of the spawning population, IDFG strives to collect approximately 550 adult steelhead in the fall and an additional 50 females in the spring. This takes into account pre-spawning mortality, culling for disease management, and manipulation of spawn timing. It also provides a small surplus for use at Pahsimeroi FH and Sawtooth FH in the event that returns to their weirs do not meet production goals. Steelhead spawning occurs from mid-March through early May and the resulting eggs and swim-up fry are transferred to Niagara Springs FH beginning in June.

1.3.1. Projected adult return – An estimate of the number of steelhead returning to the Hells Canyon reach of the Snake River in fall, 2009 and spring, 2010 is not available at this time. *Kent Hills/Ralph Steiner*

1.3.2. Ladder operation – Fall operation of the Hells Canyon Trap begins when river water temperature cools to 60⁰ F. For 2009, the forecast date to begin trap operation is October 26. The trap will be operated up to 3 days per week until broodstock needs are met. All fish captured will be transported from the trap to Oxbow FH by IPC personnel using a 1,400 gallon tank truck with approximately 125 fish per load. Upon arrival at Oxbow FH, fish will be interrogated for tags, marks, length, gender, and origin. Hatchery origin fish (AD clipped) will be placed into holding ponds, while natural origin fish (no AD clip) will be transported back to Hells Canyon Dam for release into the Snake River. Natural origin fish receive an opercle punch to identify possible recaptures. Collection of up to 3,000 additional hatchery origin fish may take place at the discretion of IDFG, ODFW and the NPT. These fish are shared equally among the parties. The IDFG and ODFW shares are typically distributed to the Boise River and Hells Canyon Reservoir respectively for sport harvest opportunity. The NPT share is utilized for ceremonial/subsistence purposes. *Kent Hills/Ralph Steiner*

2. CHINOOK SALMON

Chinook salmon *Oncorhynchus tshawytscha* are native to the Columbia River drainage and spawn in fresh water during the summer and fall months. Idaho's Chinook enter the fresh water system the same year they spawn, usually beginning in spring of each year. Spawning begins in August and continues as late as November. Spring, Summer, and Fall Chinook are designated by the time of entry into the Columbia River system.

2.1 Brood Year 2004 Chinook Salmon

2.1.1 Eagle Fish Hatchery

Approximately 600 eyed eggs are needed to meet adult release production goals for the Eagle Hatchery Spring Chinook salmon captive rearing program. This number represents eyed-egg collection from two Salmon River drainages (300 eyed eggs from the East Fork Salmon River and 300 eyed eggs from the West Fork Yankee Fork). Adult release goals are to release a minimum of 20 pairs of age-3 through age-5 mature Chinook salmon to each drainage annually.

2.1.1.1. Production status - NOAA Fisheries currently has 25 WFYF and 13 EFSR spring Chinook salmon in production at Manchester Research Station (saltwater rearing). Typically all remaining age-5 fish mature. *Carlin McAuley/Dan Baker*

2.1.1.2. Projected release - Approximately 25 WFYF and 13 EFSR spring Chinook salmon will mature at age-5. Mature Chinook salmon will be returned to Idaho in early July and released directly to natal streams. *Dan Baker*

2.1.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the

course of any rearing year are assayed for typical viral and bacterial pathogens. To date, spring Chinook salmon have remained relatively disease free for the freshwater portion of their rearing history (the Eagle FH component). Age-1 Chinook salmon are vaccinated prior to shipment to saltwater with intra-peritoneal injections of Vibrogen (Aqua Health, Ltd., Charlottown, P.E.I., Canada) to prevent *Vibrio* spp. and Renogen (Aqua Health Ltd.) to prevent BKD. *Doug Munson/Mark Peterson*

2.1.1.4. Monitoring and evaluation - All juveniles are PIT tagged to track individual fish through hatchery culture. All juveniles received a VIE mark used to visually identify stock and rearing strategy. Before maturing adults are released all Chinook salmon receive an externally visible tag (Petersen Disc tag, Floy tag, Spaghetti tag, or jaw tag) to assist with post-release spawning behavior observations. Genetics samples are collected from all released adults to track parental contribution in the program. *Eric Stark*

Shoshone-Bannock Tribes: The SBT will collect juvenile Chinook salmon tissue samples at the West Fork Yankee Fork and Yankee Fork rotary screw traps. We plan to include the parental captive reared adult outplant genotypes into parentage based evaluations to determine overall production of outplanted adults in the Yankee Fork, including the captive reared adults outplanted in West Fork Yankee Fork. The SBT will also record any captive reared adults captured at the picket weirs in Yankee Fork or observed during spawning ground surveys. *Lytle Denny*

2.1.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Chinook Salmon Captive Propagation Technical Oversight Committee (CSCPTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Carlin McAuley/Eric Stark*

2.2 Brood Year 2005 Chinook Salmon

2.2.1 Eagle Fish Hatchery

Approximately 600 eyed eggs are needed to meet adult release production goals for the Eagle Hatchery Spring Chinook salmon captive rearing program. This number represents eyed-egg collection from two Salmon River drainages (300 eyed eggs from the East Fork Salmon River and 300 eyed eggs from the West Fork Yankee Fork). Adult release goals are to release a minimum of 20 pairs of age-3 through age-5 mature Chinook salmon to each drainage annually.

2.2.1.1. Production status - NOAA Fisheries currently has 143 WFYF and 139 EFSR spring Chinook salmon in production at Manchester Research Station (saltwater rearing). Approximately 90% will mature at age-4. *Carlin McAuley/Dan Baker*

2.2.1.2. Projected release - Approximately 128 WFYF and 120 EFSR spring Chinook salmon will mature at age-4. Mature Chinook salmon will be returned to Idaho in early July and released directly to natal streams. *Dan Baker*

2.2.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, spring Chinook salmon have remained relatively disease free for the freshwater portion of their rearing history (the Eagle FH component). Age-1 Chinook salmon are vaccinated prior to shipment to saltwater with intra-peritoneal injections of Vibrogen (Aqua Health, Ltd., Charlottown, P.E.I., Canada) to prevent *Vibrio* spp. and Renogen (Aqua Health Ltd.) to prevent BKD. *Doug Munson/Mark Peterson*

2.2.1.4. Monitoring and evaluation - All juveniles are PIT tagged to track individual fish through hatchery culture. All juveniles received a VIE mark used to visually identify stock and rearing strategy. Before maturing adults are released all Chinook salmon receive an externally visible tag (Petersen Disc tag, Floy tag, Spaghetti tag jaw tag) to assist with post-release spawning behavior observations. Genetics samples are collected from all released adults to track parental contribution in the program. *Eric Stark*

Shoshone-Bannock Tribes: The SBT will collect juvenile Chinook salmon tissue samples at the West Fork Yankee Fork and Yankee Fork rotary screw traps. We plan to include the parental captive reared adult outplant genotypes into parentage based evaluations to determine overall production of outplanted adults in the Yankee Fork, including the captive reared adults outplanted in West Fork Yankee Fork. The SBT will also record any captive reared adults captured at the picket weirs in Yankee Fork or observed during spawning ground surveys. *Lytle Denny*

2.2.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Chinook Salmon Captive Propagation Technical Oversight Committee (CSCPTOC) meets bi-monthly providing program updates to participating agencies. *Eric Stark*

2.3 Brood Year 2006 Chinook Salmon

2.3.1 Eagle Fish Hatchery

No BY2006 eyed-eggs were collected during 2006. No further collections are planned for this project.

2.4 Brood Year 2007 Chinook Salmon

2.4.1 Sawtooth Fish Hatchery

The LSRCP has a mitigation goal to provide adult returns of 19,445 adult Chinook above Lower Granite Dam annually. The SFH was constructed from 1983-1985 and began operations in 1985 to contribute to this adult spring Chinook salmon goal to return 11,310 to the SFH, 6,090 to the East Fork Salmon River and 2,045 to Valley Creek (based on a SAR of 0.87%). The original production design for SFH was for 2.3 million smolts

including 1.3 million smolts in the Salmon River at SFH, 700,000 for the East Fork Salmon River and 300,000 smolts released in Valley Creek. The Valley Creek component of the program has never been pursued and the East Fork Salmon River component was changed in 1998 to a natural production program. Approximately, 350 females and 350 males are needed for broodstock for the SFH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality. This brood level will provide 1.5 million green eggs at 4,300 egg fecundity and 1.3 million smolts at an average of 88% eyed egg-to-smolt survival to meet the SFH component. An additional 250 pairs are required to reach the original production design of 2.3 million smolts. Currently, SFH has sufficient specific, pathogen-free water to rear 600,000 parr to 7 cm target size prior to transfer to final rearing on raw river water.

Brood Fish Health- Prespawning mortality was recorded at 51% due to *Ichthyophthirius multifiliis*, while ELISA samples detected *Renibacterium* in 5.8% (3/52) above 0.25. Eggs from females with optical densities above 0.25 (highest 0.34) were not culled and will be reared as a high BKD segregation group. *Myxobolus cerebralis* was not detected. IHNV was detected in 15 of 150 (10%) fish sampled. *Doug Munson*

2.4.1.1. Production status - On March 1, 2009, there were 275,153 BY2007 spring Chinook averaging 18 fpp and 146 mm (5.74 inches) in length being reared in three outside raceways. These fish are doing well and will meet size-at-release requirements of 16-21 fpp. Satiation feed diet occurs as weather permits. Bio-Oregon transfer diet is being presented to test group of AD/CWT/PIT fish. Control group is AD/PIT fish. *Brent Snider*

2.4.1.2. Outside rearing - Final rearing takes place in one of fourteen outside raceways. These raceways are supplied with raw, river water. The target Density Index and flow index at Release are 0.15-0.20 and 1.0 – 1.6 respectively. At release the smolts are crowded into the connected raceway tailrace then crowded from the tailrace to the Salmon River via a buried 24 inch pipeline. *Brent Snider*

2.4.1.3. Monitoring and evaluation - Standard protocol is to do a sample count, at least monthly, for growth monitoring during the rearing cycle. This is also done approximately one week before release. Length frequencies and condition factors will be determined from a representative sample prior to release. Approximately 120,000 of the fish were marked with a Coded Wire Tag and a CWT retention check will be completed before release.

IDFG tagging and research personnel PIT tagged 18,755 fish in early March of 2009 and research personnel will monitor PIT tag detection at dams. Starting in 2007, large scale representative PIT tagging was implemented at Sawtooth and has been ongoing since that time. This initial increase in PIT tags was designed to address two research priorities identified by IDFG management and research staffs during the January 2006 Anadromous Fisheries meeting: 1) improved stock composition information for in-season management of spring Chinook salmon fisheries in the Salmon river, and 2) more precise estimates of hatchery specific SARs in the Salmon river watershed. In addition to the 15,000 provided by LSRCP, the Comparative Survival Study (CSS) supplied 3,800 PIT tags. CSS provided these tags to boost the number of in-river tags. As a result of these additional tags, IDFG

Research will randomly select approximately 72% of PIT tagged fish within the release (13,500 fish) to be treated as run-at-large (monitor mode) fish at each Columbia River hydro-system collection facility. We will request that the balance of the PIT tagged fish (5,300) be diverted back to the river (default bypass mode) for reach survival estimates. The contribution of in-river tags from CSS is expected to continue into the future. A background and summary of the CSS study (10 year retrospective report) can be found at <http://www.fpc.org/documents/CSS/FINAL>. Hatchery staff recovers PIT tags from pre-release mortalities and sweeps raceways with a magnet post release to recover any shed PIT tags. *John Cassinelli*

2.4.1.4. Juvenile fish health - - Chinook salmon reared at this facility were inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. The preliberation sample consisted of 60 randomly collected fish and examined for *Renibacterium salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index was also performed on these fish. These samples were taken within 45 days prior to release. Two prophylactic feedings of erythromycin-medicated feed were applied to juveniles with a target dose of 100 mg/kg for 28 days. Diagnostic examinations were provided on demand by EFHL. To date *Aeromonas hydrophila* and *Ichthyophthirius multifiliis* are the only pathogens detected during EFHL examinations in BY2007 spring Chinook salmon. *Doug Munson/Brent Snider*

2.4.1.5. Projected release - Spring Chinook smolts will be released by April 24, 2009. Tail screens will be removed with the fish released into the river through the tailrace pipe. Expected number at release is 275,000 at 18 fpp. *Brent Snider*

2.4.1.6. Excess production strategies - No excess projected. *Brent Snider*

2.4.1.7. Transportation strategies - None. *Brent Snider*

2.4.1.8. Communication - Monthly hatchery narrative reports are available to all requesting to be included on the distribution list. A summary run report, Annual Operation and Maintenance report and final Brood Year report available after completion and upon request. *Brent Snider*

2.4.2 McCall Fish Hatchery

McCall FH requires 1,360 returning SFSR summer Chinook to support program release objectives of 300,000 eyed eggs for SBT Dollar Creek in-stream incubator boxes and a 1.0 million hatchery smolt release at Knox Bridge on the South Fork Salmon River. Typically, 454 females and 906 males (including 36 jacks) need to be ponded as broodstock. On average this should allow for spawning of 385 females given an assumed pre-spawning rate of 15%. A split random cross spawning protocol using 2-males to fertilize eggs from 1-female is used for production salmon. Assuming a BKD High culling rate and an average fecundity of 4,300 eggs per female should provide for a total of 1,338,000 eyed eggs. A rearing mortality rate of 3%, post eye, at MCFH would allow for the goal release of

1,000,000 smolts. Overall, MCFH's adult return goal is for 8,000 SFSR summer Chinook above Lower Granite Dam. Additionally, MCFH rears up to 100,000 Johnson Creek origin summer Chinook salmon, to smolt, annually.

Brood Fish Health- Approximately 2.4% of the brood females sampled by ELISA were above 0.25 and considered high. The eggs from these females were culled. Pre-spawning mortality was measured at 9% in 2007. No other pathogens were detected. *Doug Munson*

2.4.2.1. Production status - A total of 1,106,700 reserve summer Chinook salmon smolts were released into the South Fork Salmon River, at Knox Bridge, during the period of March 23-25, 2009. Marks included in this release were: 793,256 AD-clip only, 261,750 AD-clip/ CWT and 51,694 AD-clip/ PIT at an average size of 21.25 fpp (5.18 inch TL). *Gene McPherson/Steve Kammeyer*

2.4.2.2 Outside rearing - Final rearing takes place in one of two outdoor rearing ponds which are partially covered to allow for natural light penetration. At time of release density and flow indices averaged 0.22 and 2.01, respectively. These ponds are connected to a collection basin where fish are crowded into for loading onto transport trucks for release. *Gene McPherson/Steve Kammeyer*

2.4.2.3. Monitoring and evaluation - Prior to release, hatchery personnel will sample 300 fish from each pond to evaluate Ad-clip mark quality and to determine fish size (total length and fish per pound). Approximately 266,800 fish were initially marked with a Coded Wire Tag. However, due to mixed rearing conditions no, retentions checks for CWT or PIT tags were made. A CWT shed rate of 1.72% was applied to final release numbers for this brood year. This was done as an approximation and was based on the CWT shed rate that was determined by NPT fishery personnel for Johnson Creek summer Chinook when PIT tagged. *Gene McPherson/Steve Kammeyer/John Cassinelli*

IDFG tagging and research personnel PIT tagged 52,694 fish in early February of 2009 and research staff will monitor PIT tag detection at dams and generate juvenile survival estimates. This large group of PIT tagged fish is part of the Comparative Survival Study (CSS) which started in 1996. Fish Passage Center personnel will randomly select approximately 70% of PIT tagged fish within the release (36,400 fish) to be treated as run-at-large (monitor mode) at each Columbia River hydro-system collection facility. The balance of the PIT tagged fish (15,600) will be diverted back to the river (default bypass mode) for reach survival estimates. Though this large number of fish are tagged primarily for CSS research, these tags allow research staff to obtain stock composition information for in-season management of summer Chinook salmon fisheries in the Salmon river, as well as create more precise estimates of hatchery specific SARs in the Salmon river watershed. A background and summary of the CSS study (10 year retrospective report) can be found at <http://www.fpc.org/documents/CSS/FINAL>. Hatchery staff recovers PIT tags from pre-release mortalities and sweeps raceways with a magnet post release to recover any shed PIT tags. *John Cassinelli*

The Nez Perce Tribe is operating a PIT tag array below the juvenile release site in the upper mainstem South Fork Salmon River (river kilometer 522.303.215.65) to help evaluate the survival of the juvenile releases out of the SFSR and survival back as adults. This PIT tag array will also help provide real time estimates of adults into the SFSR and help evaluate natural and hatchery composition. Please contact Nez Perce Tribe personnel if the release date schedule changes. Information about PIT tag recapture information can be viewed at "www.ptocentral.org/dbaccess/InStrmDtctn/InStrmDtctn_query.html" and the instream site is "KRS". *Bill Young/Jason Vogel*

2.4.2.4. Juvenile fish health - Chinook salmon reared at this facility were inspected by EFHL personnel on a quarterly basis for *R. salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services are provided upon request. The preliberation sample consisted of 60 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index was also being performed on these fish. The preliberation sample was performed within 45 days of release. No Prophylactic medicated feed treatments were applied to the BY2007 South Fork summer Chinook population at this facility. *Doug Munson/Gene McPherson*

2.4.2.5. Projected release – A total of 1,106,700 reserve summer Chinook salmon smolts were released into the South Fork Salmon River, at Knox Bridge, during the period of March 23-25, 2009. Marks included in this release were: 793,256 AD-clip only, 261,750 AD-clip/ CWT and 51,694 AD-clip/ PIT at an average size of 21.25 fpp (5.18 inch TL). *Gene McPherson/Steve Kammeyer*

2.4.2.6. Excess production strategies - All smolts from BY2007 were released into the SFSR at Knox Bridge. Prior to hatching 99,800 eyed eggs (from 27 females) were culled from hatchery production as "excess". Eggs culled came from incubation trays where one of the contributing females demonstrated elevated Low Positive ELISA optical densities of 0.128-0.249. *Gene McPherson/Steve Kammeyer*

2.4.2.7. Transportation strategies- The McCall FH LSRCP transport truck, McCall FH adult transport truck, McCall FH resident 2-Ton transport truck and two resident transport trucks (from Nampa FH) were utilized to move salmon smolts to the SFSR release site at Knox Bridge. Approximately 8,500 pounds of fish were transported for each release and 2 release trips are scheduled to take place each day. At Knox Bridge, water from the SFSR was pumped onto the trucks to provide tempering prior to release. Release took place using a transfer tube stretching from the roadway to the river. Johnson Creek origin summer Chinook smolts were completely emptied from the hatchery collection basin before SFSR SU transportation can begin. *Gene McPherson/Steve Kammeyer*

2.4.2.8. Communication - Prior to initiation of transportation activities the MCFH hatchery manager contacted the Valley County Road Department to notify them of the hatcheries hauling schedule to ensure the Warm Lake road plowing crews were aware of our presence. The MCFH hatchery manager also contacted McCall field offices of the IDFG and NPT,

prior to releases, so they were aware of the hatcheries release schedule and the operation of fish sampling screw-traps can be suspended. *Gene McPherson/Steve Kammeyer*

2.4.3 Johnson Creek

The goal of the Johnson Creek Artificial Propagation Enhancement (JCAPE) project is to reduce the demographic risk of extirpation of the ESA listed Johnson Creek summer Chinook salmon and begin its recovery through supplementation. A secondary goal is to maintain genetic diversity of the artificially propagated summer Chinook salmon population and the natural population. The intent is to increase adult returns through increased juvenile survival and improved homing in order to preserve and recover the Johnson Creek salmon population.

Supplementation (O&M) Goal: Conduct necessary operations to produce 100,000 smolts annually for release back into Johnson Creek. In order to meet this supplementation goal, up to 40 pairs of natural origin adults are needed to produce 100,000 smolts annually.

Monitoring and Evaluation (M&E) Goal: Establish baseline information on the Johnson Creek summer Chinook salmon population. Monitor and evaluate the effectiveness of supplementation to aid in the recovery of the natural population of Johnson Creek summer Chinook salmon.

2.4.3.1. Production status - This group of fish was released into Johnson Creek on March 16, 17, 18, 2009. A total of 91,080 BY07 Johnson Creek origin supplementation summer Chinook at an average size of 28.0 fpp (4.77 inches TL or 113.3mm fork length) was released into Johnson Creek. *John Gebhards*

2.4.3.2. Outside rearing - N/A. *John Gebhards*

2.4.3.3. Juvenile monitoring and evaluation - The JCAPE project is integrated with a comprehensive M&E program that follows a detailed M&E Plan (Vogel et al. 2005). The monitoring and evaluation program quantifies 41 regionally standardized performance measures to evaluate the supplementation program. These standard performance measures help inform decisions on Abundance, Survival-Productivity, Distribution, Genetic, Life History, and Habitat. The evaluation plan utilizes comparative performance tests at multiple life stages and involves treatment vs. natural experiments and repeated measures testing (treatment vs reference). This program, initiated prior to the first releases of supplemented fish, has been collecting baseline life-history characteristic information, to examine survival of the wild fish in Johnson Creek and any potential effects that the supplementation program may have on the natural population.

The Johnson Creek broodyear 2007 smolts have been 100 % CWT and 100% VIE (Left eye red) tagged. In addition, 2,097 of these fish were PIT tagged in January 2009. During tagging, all smolts PIT tagged were checked for CWT and VIE tag retention. Of the 2,157 fish that were checked, 96.57% retained both the CWT and VIE tag. Individual retention

of marks were the same; CWT retention was 98.28% as was VIE retention. All fish examined retained at least one of the two tags. *John Gebhards/Craig Rabe*

The Nez Perce Tribe is operating a PIT tag array below the juvenile release site in the East Fork South Fork Salmon River (EFSFSR) (river kilometer 522.303.215.060.021) to help evaluate the survival of the juvenile releases out of the Johnson Creek and survival back as adults. This PIT tag array will also help provide real time estimates of adults into the EFSFSR and help evaluate natural and hatchery composition. Information about PIT tag recapture information can be viewed at "www.ptocentral.org/dbaccess/InStrmDtctn/InStrmDtctn_query.html" and the instream site is "ESS". Please contact Nez Perce Tribe personnel if the release date schedule changes. *Rick Orme/Bill Young/Jason Vogel*

2.4.3.4. Juvenile fish health - These fish were reared at McCall FH. Diagnostic services are available upon request. The pre-liberation sample consisted of 60 randomly collected fish and examined for *R. salmoninarum*, *M. cerebralis*, and viral replicating agents. Goede's organosomatic index was also performed on these fish. The preliberation sample was performed within 45 days of release. *John Gebhards/Doug Munson*

2.4.3.5. Projected release - A total of 91,080 smolts was released on March 16-18, 2009. These fish were directly released into Johnson Creek into the pool located below the Wapiti Ranch Bridge. No attempts were made to acclimate these fish at the time of release. *John Gebhards*

2.4.3.6. Excess production strategies - There are no excess fish from this brood year. *John Gebhards*

2.4.3.7. Transportation strategies - The NPT provided personnel and three 1-ton 4x4 trucks with 300 – 400 gallon tanks for transporting smolts to Johnson Creek for release. One release trip (3 trucks per trip) was achieved each day. Releases occurred on March 16-18, 2009. *John Gebhards*

2.4.3.8. Communication - The JCAPE project is responsible for preparing annual brood year reports that are submitted to both NOAA Fisheries and BPA. These reports are not currently sent to the contact list (Section 5), but are available upon request or through BPA's website or from the JCAPE project staff. *John Gebhards*

2.4.4 Pahsimeroi Fish Hatchery

The mitigation goal for Pahsimeroi FH is to release up to 1,000,000 Summer Chinook smolts annually into the Pahsimeroi River. Approximately 300 pair of adult Summer Chinook are required to meet this mitigation when considering pre-spawning mortality and culling of bacterial kidney disease positive adults.

Brood Fish Health- Prespawning mortality was recorded at 5%, while ELISA samples detected *Renibacterium* in 12% (41/344) above 0.25. Viral replicating agents were not

detected in a 60 fish sample. *Myxobolus cerebralis* was detected in 3 of 20 fish (15%) sampled. *Doug Munson*

2.4.4.1. Production status - On March 30, 2009, a total of 870,842 BY2007 ESA listed summer Chinook were volitionally released from rearing ponds 1 and 2. These fish averaged 11.29 fish per pound for a total weight of 77,150 pounds. The breakdown is as follows: 798,914 AD only, 53,178 ADCWT and 18,750 ADPIT. *Todd Garlie*

2.4.4.2. Outside rearing - All BY2007 summer Chinook pre-smolts were early reared at Sawtooth Fish Hatchery. These fish were transferred back to Upper Pahsimeroi FH from Sawtooth FH on May 27 and 28, 2008. *Todd Garlie*

2.4.4.3. Monitoring and evaluation - All BY2007 Pahsimeroi FH summer Chinook were adipose clipped. Additionally, 53,178 fish received Coded Wire Tags for SAR/exploitation information. IDFG tagging and research personnel PIT tagged 18,750 fish in mid March of 2009 and research personnel will monitor PIT tag detection at dams. Starting in 2008, large scale representative PIT tagging was implemented at Pahsimeroi and has been ongoing since that time. This initial increase in PIT tags was designed to address two research priorities identified by IDFG management and research staffs during the January 2006 Anadromous Fisheries meeting: 1) improved stock composition information for in-season management of spring Chinook salmon fisheries in the Salmon river, and 2) more precise estimates of hatchery specific SARs in the Salmon river watershed. Idaho Power Company provides 15,000 of these PIT tags. In addition, the Comparative Survival Study (CSS) supplied 3,800 PIT tags. CSS provided these tags to boost the number of in-river tags. As a result of these additional tags, IDFG Research will randomly select approximately 72% of PIT tagged fish within the release (13,500 fish) to be treated as run-at-large (monitor mode) at each Columbia River hydro-system collection facility. We will request that the balance of the PIT tagged fish (5,300) be diverted back to the river (default bypass mode) for reach survival estimates. The contribution of in-river tags from CSS is expected to continue into the future. A background and summary of the CSS study (10 year retrospective report) can be found at <http://www.fpc.org/documents/CSS/FINAL> *John Cassinelli*

2.4.4.4. Juvenile fish health - Chinook salmon reared at this facility were inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas* and *Flavobacterium psychrophilum*. Diagnostic services were provided upon request. Two metaphylactic treatments of erythromycin medicated feed were applied to this brood year for control of *Renibacterium*. The preliberation sample consisted of 60 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index was performed on these fish. The preliberation sample was performed within 45 days of release. *Doug Munson*

2.4.4.5. Actual release - On March 30, through April 10, 2009 a total of 870,842 BY2007 ESA listed summer Chinook were volitionally released from rearing ponds 1 and 2. These

fish averaged 11.29 fish per pound for a total weight of 77,150 pounds. The breakdown is as follows: 798,914 AD only, 53,178 AD/CWT and 18,750 AD/PIT. *Todd Garlie*

2.4.4.6. Excess production strategies - None this brood year.

2.4.4.7. Transportation strategies - None, direct release.

2.4.4.8. Communication - Pahsimeroi Hatchery provides monthly inventory summaries to an electronic distribution list which includes IDFG fisheries bureau personnel, LSRCP personnel, and IPC fisheries personnel. *Todd Garlie*

2.4.5 Rapid River Fish Hatchery

Approximately, 2,500 Chinook are needed annually for broodstock for the Rapid River FH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality at the 20-year average as well as average female culling required by disease management constraints and average fecundity. This brood level will provide 3.4 million green eggs and 3.0 million smolts at an average of 88% eyed egg-to-smolt survival to meet the smolt release goals.

Brood Fish Health- Prespawning mortality was recorded at 4.6%, while ELISA samples detected *Renibacterium* in 1.2% (21/1682) above 0.249. Viral replicating agents and *Myxobolus cerebralis* were not detected. *Doug Munson*

2.4.5.1. Production status - As of February 15, 2009 Rapid River FH has 3.2 million BY2007 spring Chinook on station (134 mm average total length, 22.2 fpp). *Ralph Steiner*

2.4.5.2. Outside rearing - Outside rearing takes place in two stages. For initial rearing, fry are moved from vertical stack incubators to eleven outside raceways. Density and flow indices were 0.49 and 1.11, respectively in mid June 2008 when the fingerlings were marked and moved to the final rearing ponds. As of mid April 2009 final rearing continues in the rearing ponds until the end of volitional release on April 24. Final rearing density and flow indices are projected to average 0.22 lb/ft³/in and 2.25 lb/gpm/in respectively at the beginning of release. *Ralph Steiner*

2.4.5.3. Monitoring and evaluation - The fish are sampled biweekly for weight. Samples are comprised of at least 300 fish/rearing unit. At the end of each month, 60 fish sub-samples are measured to determine average total length and condition factor. Starting the month marking was completed and continuing until release, a quality check of AD-clips is performed on the sub-samples and fish are categorized as full-clip, partial-clip, or no-clip. The BY2007 marking included 100% AD, and 147, 441 CWT which were completed June 2008. *Ralph Steiner*

IDFG tagging and research personnel PIT tagged 51,725 fish in early February of 2009 and research personnel will monitor PIT tag detection at dams and generate juvenile survival estimates. This large group of PIT tagged fish is part of the Comparative Survival Study

(CSS) which started in 1996. Fish Passage Center personnel will randomly select approximately 70% of PIT tagged fish within the release (36,400 fish) to be treated as run-at-large (monitor mode) at each Columbia River hydro-system collection facility. The balance of the PIT tagged fish (15,600) will be diverted back to the river (default bypass mode) for reach survival estimates. Idaho Power Company (IPC) provides 20,000 of the PIT tags to contribute to the run-at-large group while CSS provides 32,000 PIT tags to make up the remainder of the run-at-large group and create the return-to-river group. Though a large number of these fish are tagged primarily for CSS research, these tags allow research staff to obtain stock composition information for in-season management of summer Chinook salmon fisheries in the Salmon river, as well as create more precise estimates of hatchery specific SARs in the Salmon river watershed. A background and summary of the CSS study (10 year retrospective report) can be found at <http://www.fpc.org/documents/CSS/FINAL> *John Cassinelli*

2.4.5.4. Juvenile fish health - Chinook salmon reared at this facility were inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas* and *Flavobacterium psychrophilum*. Diagnostic services were provided upon request. The pre-liberation sample consisted of 60 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index was performed on these fish. The preliberation sample was performed within 45 days of release. One prophylactic treatment of erythromycin-medicated feed was applied to juveniles with a target dose of 100 mg/kg for 28 days to control BKD. *Doug Munson*

2.4.5.5. Projected release - As of mid April 2009 final rearing continues in the rearing ponds. Volitional release of 2,500,000 smolts is underway and will conclude April 24. March 16 through March 19, 501,750 smolts were released into the Snake River below Hells Canyon Dam. March 20 200,250 were released into the Little Salmon River at Pine Hurst. *Ralph Steiner*

2.4.5.6. Excess production strategies - Pursuant to US vs. OR 2008 – 2017 Management Agreement Table B1, release sites will include Rapid River, the Snake River below Hells Canyon Dam, and the Little Salmon River. For production at or above 3.0 million, releases will be 2.5 million into Rapid River and alternating releases of 100,000 to Hells Canyon and 50,000 to Little Salmon River (footnote 11 to Table B1 US vs. OR 2008-2007 Management Agreement. *Ralph Steiner*

2.4.5.7. Transportation – IPC tanker trucks transported smolts for release at the USFS boat ramp below Hells Canyon Dam and Pinehurst Bridge on Little Salmon River. Transport took place in oxygenated Rapid River water at a loading density of 0.6 lbs/gallon. *Ralph Steiner*

2.4.5.8. Communication - Release groups will be reported to the IDFG Fisheries Bureau via annual Marked Release Summary and Idaho Fish and Game Fish Release Database and to the IDFG Research Bureau via the Data Entry Form for Release Database. *Ralph Steiner*

2.4.6 Oxbow Fish Hatchery - NA

2.4.7 Eagle Fish Hatchery-NA

2.4.8 Shoshone Bannock Tribes Egg Box Program

On August 24 and 28, 2007, McCall Fish Hatchery personnel released 90 females and 70 males; and 100 females and 125 males, respectively for a total release of 385 adult Chinook salmon. The release site, Roaring Creek, was located approximately 1.5 miles below the Dollar Creek confluence with the South Fork Salmon River. This site was utilized due to the lack of ready access to Dollar Creek and the necessity to get in and out because of forest fires. *Lytle Denny*

2.5 Brood Year 2008 Chinook Salmon

2.5.1 Sawtooth Fish Hatchery

The LSRCP has a mitigation goal to provide adult returns of 19,445 adult Chinook above Lower Granite Dam annually. The SFH was constructed from 1983-1985 and began operations in 1985 to contribute to this adult spring Chinook salmon goal to return 11,310 to the SFH, 6,090 to the East Fork Salmon River and 2,045 to Valley Creek (based on a SAR of 0.87%). The original production design for SFH was for 2.3 million smolts including 1.3 million smolts in the Salmon River at SFH, 700,000 for the East Fork Salmon River and 300,000 smolts released in Valley Creek. The Valley Creek component of the program has never been pursued and the East Fork Salmon River component was changed in 1998 to a natural production program.

Water from the Salmon River water that is used in the outside raceways at Sawtooth hatchery tests positive for the whirling disease pathogen. Although Chinook salmon parr larger than 7 centimeters are resistant to whirling disease, they must be reared on pathogen free water prior to reaching that size. A source of pathogen free well water has been developed at the hatchery but only in volumes sufficient to rear approximately 575,000 fry to the 7 cm. size prior to transfer to river water. To achieve the current 1.3 million smolt production level at SFH, approximately, 350 females and 350 males are needed for broodstock. This number includes jacks and accounts for pre-spawning mortality. This brood level will provide 1.5 million green eggs at 4,300 egg fecundity and 1.3 million smolts at an average of 88% eyed egg-to-smolt survival.

Brood Fish Health- Sawtooth Brood Fish Health- Broodstock disease sampling efforts for 2008 detected *Renibacterium*, *IHN*, *Myxobolus cerebralis* and *Ichthyophthirius multifiliis*. Prolong formalin treatments at 40 mg/l for 6 hours (by veterinary extra-label prescription) were not needed this year for "ICH" infestations. ELISA surveillance detected 5/594 (1%) female with a high optical density. The eggs from this female were culled. None of the 20 fish sampled were positive for *M. cerebralis* the etiologic agent of whirling disease. *IHN* was detected in 0 of 90 fish sampled. *Doug Munson*

2.5.1.1. Production status - As of April 1, 2009, there are approximately 1.9 million fry ponded and started on feed between fourteen indoor vats using well water (500,000 parr) and eight outside raceways on river water (1.4 million parr). *Brent Snider*

2.5.1.2. Outside rearing - Final rearing takes place in one of fourteen outside raceways. These raceways are supplied with raw, river water. The target Density Index and flow index at Release are 0.15-0.20 and 1.0 – 1.6 respectively. At release the smolts are crowded into the connected raceway tailrace then crowded from the tailrace to the Salmon River via a buried 24 inch pipeline. BY08 spring Chinook will utilize ten outside raceways. *Brent Snider*

2.5.1.3. Juvenile monitoring and evaluation - Standard protocol is to sample count at least monthly for growth monitoring during their rearing cycle, and approximately one week before release. Length frequencies and condition factors will be determined from a representative sample prior to release. A fin clip quality check and CWT retention check will be completed before release. IDFG tagging and research personnel will be PIT tagging (18,800) during March of 2010, and monitor PIT tag detection at dams. *Brent Snider/John Cassinelli*

2.5.1.4. Fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. The preliberation sample will consist of 60 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. This sample will be taken within 45 days of release. One prophylactic feeding of erythromycin-medicated feed are planned for juveniles with a target dose of 100 mg/kg for 28 days. Diagnostic services will be provided upon request. *Doug Munson*

2.5.1.5. Projected release - BY2008 releases are planned for April 2010. *Brent Snider*

2.5.1.6. Excess production strategies - No projected excess. *Brent Snider*

2.5.1.7. Transportation – None. *Brent Snider*

2.5.1.8. Communication - Monthly hatchery narrative reports are available to all requesting to be included on the distribution list. Summary run report, Annual Operation and Maintenance report and final Brood Year report are available after completion and upon request. *Brent Snider*

2.5.2 McCall Fish Hatchery

McCall FH requires 1,360 returning SFSR summer Chinook to support program release objectives of 300,000 eyed eggs for SBT Dollar Creek in-stream incubator boxes and a 1.0 million hatchery smolt release at Knox Bridge on the South Fork Salmon River. Typically, 454 females and 906 males (including 36 jacks) need to be ponded as broodstock. On

average this should allow for spawning of 385 females given an assumed pre-spawning rate of 15%. A split random cross spawning protocol using 2-males to fertilize eggs from 1-female is used for production salmon. Assuming a BKD High culling rate and an average fecundity of 4,300 eggs per female should provide for a total of 1,338,000 eyed eggs. A rearing mortality rate of 3%, post eye, at MCFH would allow for the goal release of 1,000,000 smolts. Overall, MCFH's adult return goal is for 8,000 SFSR summer Chinook above Lower Granite Dam. Additionally, MCFH rears up to 100,000 Johnson Creek origin summer Chinook salmon, to smolt, annually.

Brood Fish Health- McCall Brood Fish Health- Approximately 10% of the brood females sampled by ELISA were above 0.25 and considered high. The eggs from these females were culled. Pre-spawning mortality was measured at 30% in 2008 was due to high turbid runoff events in the South Fork of the Salmon River and the inability to treat with formalin for more than two weeks. No other pathogens were detected. *Doug Munson*

2.5.2.1. Production status - As of April 1, 2009 there were 1,206,200 BY2008 summer Chinook fry being reared at McCall FH. These fry are the retained progeny from spawning 281 SFSR returning summer Chinook females.

A total of 429 SFSR Reserve summer Chinook females were spawned at the SFSR trap August 12 – September 2, 2008. These females produced a total of 2,073,280 green eggs demonstrating an average fecundity of 4,833 eggs per female. Average eye-up was 88.40% resulting in a total of 1,832,770 eyed eggs. Each incubation tray was loaded with the eggs from two females. Fish health protocol required the initial culling of eggs from females who returned ELISA optical densities greater than 0.250. Elevated “BKD High” optical density was detected in 15 females, but due to incubation tray loading the eggs from 30 females, or 124,380 eyed eggs, were destroyed as BKD High Positives. An additional 155,420 eyed eggs, coming from 40 females, were culled as higher level Low BKD Positives to further reduce the hatchery inventory. Representatives from the Shoshone Bannock Tribe received 322,620 eyed eggs, coming from 78 females, on October 14-15, 2008 for use in Dollar Creek in-stream incubator boxes. *Gene McPherson/Steve Kammeyer*

2.5.2.2. Rearing - Early: At swim-up summer Chinook fry are transferred into 12 indoor vats with screens initially placed at ½ vat length. Approximately 101,100 fry were set out in each vat. Hourly hand feeding during the day commenced when 80% of set out fry achieved swim-up. Extruded “BioVita” starter feeds, produced by Skretting/ BioOregon, will be used during early rearing. Flows were set at 80 gpm then increased to 140 gpm (maximum) when fry were well on feed. Individual vats will be extended to full length when the density index reaches 0.50 to 0.55. Approximately ½ of the fry will be marked (hand Ad-clipped) into an outdoor pond in early mid-June (250-350 fpp). At this time remaining fry will be subdivided into 5 of the emptied vats to provide space for continued rearing (50,000 to 66,000 in 11 vats). Remaining indoor fry (105 – 150 fpp) will be marked (MATS Automated Trailer) into the second outdoor pond in early during the 3rd week of July with ending individual vat densities ranging from 0.40 to 0.52 (flow indices 0.89 – 1.16).

Final: Two outdoor rearing ponds will be utilized for rearing the reserve parr to smolt. summer Chinook in the ponds will be hand fed a dry pellet diet (BioDry-1000 LP w/ EIBS vitamin pack), produced by Skretting/ BioOregon, with a low phosphorus formulation and fortified with an EIBS vitamin pack. Sample counts will be conducted monthly to monitor growth. *Gene McPherson/Steve Kammeyer*

2.5.2.3. Juvenile monitoring and evaluation – [Numbers reported in this section are suspect due to problems encountered during egg enumeration. It is likely that the revised inventory obtained during marking will be lower.] All SFSR summer Chinook will be Ad-clipped, and 200,000 of these will also be coded-wire-tagged. Typically 52,000 of the Ad-clipped pre-smolts will receive a PIT tag prior to release. Tentatively, marking crews will hand Ad-clip 599,800 parr in mid-June into Pond 1. During the 3rd week of July, MATS will be used to Ad clip 397,850 parr and Ad/CWT 200,000 parr into Pond 2. Should revised hatchery inventory demonstrate the availability of a large excess in production, secondary excess production strategies will be employed to reduce hatchery inventories to a desired level in the fall of 2009. PIT tags will be inserted into 52,000 pre-smolts from Pond 1 in February 2010. In the two weeks prior to release a sample of 300 summer Chinook (crowded with a seine to make selection more random) from each pond will be checked by McCall FH staff to provide a baseline for mark quality, release size and fish condition. *Gene McPherson/Steve Kammeyer*

The Nez Perce Tribe is operating a PIT tag array below the juvenile release site in the upper mainstem South Fork Salmon River (river kilometer 522.303.215.65) to help evaluate the survival of the juvenile releases out of the SFSR and survival back as adults. This PIT tag array will also help provide real time estimates of adults into the SFSR and help evaluate natural and hatchery composition. Please contact Nez Perce Tribe personnel if the release date schedule changes. Information about PIT tag recapture information can be viewed at ”www.ptocentral.org/dbaccess/InStrmDtctn/InStrmDtctn_query.html” and the instream site is “KRS”. *Bill Young/Jason Vogel*

2.5.2.4. Fish health - Chinook salmon reared at this facility are being inspected by the EFHL on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens. Diagnostic services will be provided upon request. The preliberation sample will consist of 60 randomly selected fish and examined for *Renibacterium*, viral replicating agents and whirling disease *M. cerebralis*. Goede’s organosomatic index will be performed as a part of this preliberation examination. The preliberation examination will be performed between 30 and 45 days prior to release. No prophylactic erythromycin medicated feed treatments are scheduled for BY2008 SFSR SU to be reared at MCFH. The APHIS veterinarian-in-charge will be notified of any reportable pathogen. *Doug Munson*

2.5.2.5. Projected release - Hatchery inventories will be adjusted to the physical counts obtained during marking events. Current inventory numbers project the potential availability of 1,191,000 smolts in March 2010. If this number holds true, following marking, the use of a secondary excess release strategy is anticipated. A desired release

target for March 2010 is 1,050,000 smolts at a size of 18-20 fpp. *Gene McPherson/Steve Kammeyer*

2.5.2.6. Excess production strategies - Concern over potential inaccuracies generated from “Jensorter” egg counter enumeration of eyed eggs has led to the current situation where the actual hatchery inventory number is in question. Assumptions were made to be conservative in the number of eggs/ spawned females to retain for production. Initial efforts to reduce the hatchery inventory to a “full hatchery capacity” level resulted in the culling of 155,420 eyed eggs that had been spawned from 40 females and were in incubation trays where one of the contributing females demonstrated ELISA results of 0.167-0.249 (eggs from 21-Low Positive females were paired with eggs from 19 other females). Determination for the need of a potential secondary reduction to the hatchery inventory will be made following marking of parr into the outdoor rearing ponds (to be completed by the 3rd week of July 2009). If the revised marking inventory is considerably higher than what is needed to meet smolt production it is anticipated that a fall release of Ad-clip only parr will take place with the parr released immediately below the SFSR Trap water intake similar to what occurred in 2004 for excess BY2003 parr. *Gene McPherson/Steve Kammeyer*

2.5.2.7. Transportation strategies – The McCall FH LSRCP transport truck, McCall FH adult transport truck, McCall FH resident 2-Ton transport truck and two resident transport trucks (from Nampa FH) will be utilized to move salmon smolts to the SFSR release site at Knox Bridge. Approximately 8,500 pounds of fish will be transported for each release and 2 release trips are scheduled to take place each day. At Knox Bridge, water from the SFSR will be pumped onto the trucks to provide tempering prior to release. Release will take place using a transfer tube stretching from the roadway to the river. Johnson Creek origin summer Chinook smolts need to be completely transported out of the hatchery collection basin before SFSR SU transportation can begin. *Gene McPherson/Steve Kammeyer*

2.5.2.8. Communication - Hatchery staff will maintain communication with LSRCP coordinators, IDFG Fishery Bureau Staff, IDFG Fish Health Pathologists, IDFG Fish Marking Coordinators, and NPT Fishery Staff through rearing cycle as needed. In addition, monthly production narratives will be provided to representatives from each organization. *Gene McPherson/Steve Kammeyer*

2.5.3 Johnson Creek

See JCAPE project goals in Section 2.4.3 above.

2.5.3.1. Production status- As of April 1, 2009 there are 101,723 BY08 supplementation summer Chinook being reared at the McCall FH.

A total of 30 Johnson Creek returning natural females were spawned at the SFSR trap between August 12 – August 29, 2008 producing a total of 136,891 green eggs (after culling) at an average fecundity of 4,563 eggs per female. Average eye-up was 77.3% resulting in 105,788 eyed eggs. Eggs from individual females were incubated separately (1

female/tray). Fish health protocols would require the culling of eggs from females who returned ELISA optical densities greater than 0.25. None of the 30 females spawned were culled. *John Gebhards*

2.5.3.2. Early rearing: At swim-up Chinook fry will be transferred into two indoor rearing vats with screens initially placed at ½ lengths. Fry are initially reared in two indoor rearing tanks. Hourly hand feeding during the day will commence when 80% of set out fry achieve swim-up. Flows will initially be set at 80 gpm then increased to 130 gpm (maximum) when fry are well on feed. Individual vats will be extended to full length when the density index reaches 0.30 to 0.35. Following June reserve SFSR salmon ad fin clip marking, the Johnson Creek fish will be divided into additional vats to reduce rearing densities. All of these fish will receive a CWT in mid-July (MATS) and be moved back into the indoor vats for continued rearing. As density indices approach 0.40 Chinook parr will be subdivided into additional vats.

Final rearing: Johnson Creek Chinook parr will be moved into the outdoor collection basin as they are VIE elastomer marked in November. Chinook will be hand fed a dry pellet diet with a low phosphorus formulation and fortified with an EIBS vitamin pack (2.5 mm and 3.0 mm feed size). Sample counts will be conducted monthly to monitor growth. *John Gebhards*

2.5.3.3. Juvenile monitoring and evaluation - All Johnson Creek Chinook will be CWT tagged and VIE elastomer marked and approximately 4,000 will receive a PIT tag. MATS marking trailers will be used to complete CWT tags in July by IDFG personnel. Fishery personnel from the NPT will be responsible for VIE elastomer (50,000) and PIT tagging (4,000). A baseline mark quality assessment will be conducted by NPT fishery personnel as they PIT tag the smolts. *John Gebhards/Craig Rabe*

The Nez Perce Tribe is operating a PIT tag array below the juvenile release site in the East Fork South Fork Salmon River (EFSFSR) (river kilometer 522.303.215.060.021) to help evaluate the survival of the juvenile releases out of the Johnson Creek and survival back as adults. This PIT tag array will also help provide real time estimates of adults into the EFSFSR and help evaluate natural and hatchery composition. Information about PIT tag recapture information can be viewed at ["www.ptocentral.org/dbaccess/InStrmDtctn/InStrmDtctn_query.html"](http://www.ptocentral.org/dbaccess/InStrmDtctn/InStrmDtctn_query.html) and the instream site is "ESS". Please contact Nez Perce Tribe personnel if the release date schedule changes. *Rick Orme/Bill Young/Jason Vogel.*

2.5.3.4. Fish health - These fish will be reared at McCall FH and will follow McCall FH fish health protocols. The Eagle Fish Health Laboratory will provide diagnostic and inspection services to these fish. The pre-liberation sample will consist of 60 randomly collected fish and examined for *Renibacterium salmoninarum*, parasites, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. *John Gebhards/Doug Munson*

2.5.3.5. Projected release - Projected release target in March 2010 is 90,000 smolts at 26 - 28 fpp. These fish will most likely be directly released into Johnson Creek into the pool located below the Wapiti Ranch bridge. No attempts will be made to acclimate these fish at the time of release. *John Gebhards*

2.5.3.6. Excess production strategies - There no excess production associated with this brood year. *John Gebhards*

2.5.3.7. Transportation - Johnson Creek summer Chinook will be transported to release site by NPT fisheries personnel. The NPT will provide personnel and three or four 1-ton 4x4 trucks with 300 – 400 gallon tanks for transporting smolts to Johnson Creek near Wapiti Ranch for release. One scheduled release trip (3 to 4 trucks per trip) is planned for each day. Release of these smolts is tentatively scheduled for March 2010. *John Gebhards*

2.5.3.8. Communication - The JCAPE project is responsible for preparing annual brood year reports that are submitted to both NOAA Fisheries and BPA. These reports are not currently sent to the contact list (Section 5), but are available upon request or through BPA's website or from the JCAPE project staff. *John Gebhards*

2.5.4 Pahsimeroi Fish Hatchery

Production target for brood year 2008 is approximately 1,180,000 at 15 fish per pound (fpp) or 78,667 pounds (Table 8). This is greater than the typical production goal of 1,000,000 due to an excess egg take and unknown projected mortality levels in the new Pahsimeroi Hatchery. Inventory of 1,180,000 fish was composed of the parental lineage designation of fish classified as reserve.

Brood Fish Health- - ELISA monitoring of broodstock females was able to detect 4/353 (1.1%) with optical densities above 0.25. The eggs from these females were culled. Pre-spawning mortality was measured at 2%. *Myxobolus cerebralis* was not detected in 20 fish sampled. *Doug Munson*

2.5.4.1. Production status - - The entire run was represented during egg-takes. The first egg take took place on September 3, 2008 and the last on September 25, 2008. Eggs were incubated at one female per incubator tray for BKD isolation. Eggs from females whose ELISA values are greater than 0.25 were culled prior to hatch. Eggs were treated three times per week with a 15 minute 1,667-ppm formalin drip to control fungal growth as well as a 15 minute 500ml iodine flow through treatment for soft shell disease.

2.5.4.2. Early Rearing - Rearing will be segregated according to lineage designation and BKD status as stated above. Fry will be ponded directly into 1,280 cubic foot, 80' long indoor vats, with each vat having a mix of progeny by age class and run timing based on lot number. Starting with the first of 18 vats, approximately 65,000 fry will be ponded into each vat. All 18 vats will be used to rear approximately 1,180,000 fry. Hand feeding will begin two days after ponding to allow for proper sealing of egg yolk prior to being exposed feed. All vats will be hand fed this year with the addition of some automatic clock feeders.

IPC plans to equip all vats with automatic belt feeders in the future. All vats are supplied with pathogen-free well water and will be used for early rearing. Flow indices will be kept below 1.0 and density indices will be kept below 0.3. Indoor rearing will continue until marking in mid May with fish being approximately 100 fpp at which point the fish will be marked and moved outside into two covered rearing ponds. *Todd Garlie*

Final rearing - Feeding regimes will vary based on size of fish and rearing water temperature. Beginning June 1, 2009, a 28-day erythromycin medicated feed treatment will be administered to the entire population to prophylactically treat for BKD. Due to the perennial infestation of *Ichthyophthirius multifiliis*, which kills thousands of fish per year, prophylactic treatments of formalin, at a 167 mg/l will be applied three times per week to limit mortalities to this parasite during July and August, 2010. These fish will be reared until they reach their release size of approximately 15 fpp at which point they will be volitionally released into the Pahsimeroi River on March 31, 2010. A fin clip quality check will be completed before release.

2.5.4.3. Juvenile monitoring and evaluation - This is the first full brood year to go through their full life cycle at the new Upper Pahsimeroi FH. Lengths and weights are being recorded on each lot of fish monthly to gather baseline data for the new rearing facility. Pahsimeroi FH personnel are evaluating initial length at ponding, monthly mortality, fish health, condition factors, standard deviation, and coefficient of variation.

During marking, the CWT group will be representative of the entire run. Coded wire tagging will be conducted on May 21, 2009. Pit tagging will take place in March, 2010 and approximately 15,000 fish will be PIT tagged. IDFG research personnel will monitor PIT tagging and detection. *Todd Garlie*

2.5.4.4. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The preliberation sample will consist of 60 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. One feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg for 28 days. *Doug Munson*

2.5.4.5. Projected release - The fish will be released beginning the morning of March 31, 2010. Screens will be removed and the fish will be allowed to volitionally move out of the two rearing ponds and into the Pahsimeroi River. After two weeks of volitional release, remaining fish will be forced out of the rearing ponds by hatchery personnel. Final release numbers will be determined using sample counts along with marking numbers minus mortality. There will be pre-liberation condition factors and mark quality assessments prepared prior to release.

2.5.4.6. Excess production strategies - None

2.5.4.7. Transportation strategies - None-Volitional Release. *Todd Garlie*

2.5.4.8. Communication - Pahsimeroi Hatchery provides monthly inventory summaries to an electronic distribution list which includes IDFG fisheries bureau personnel, LSRCP personnel, and IPC fisheries personnel. *Todd Garlie*

2.5.5 Rapid River Fish Hatchery

Approximately, 2,500 Chinook are needed annually for broodstock for the Rapid River FH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality at the 20-year average as well as average female culling required by disease management constraints and average fecundity. This brood level will provide 3.4 million green eggs and 3.0 million smolts at an average of 88% eyed egg-to-smolt survival to meet the smolt release goals.

Rapid River Brood Fish Health- ELISA monitoring of female broodstock detected 73/1893 (3.9%) females with optical densities above 0.25. The eggs from these females were culled. Pre-spawning mortality was measured at 5.9% in 2008. IHNV was not detected in 90 fish sampled while WD was not detected in 20 fish sampled. *Doug Munson*

2.5.5.1. Production status – 3.1 million BY08 Spring Chinook have been ponded. *Ralph Steiner*

2.5.5.2. Outside rearing - Outside rearing takes place in two stages. For initial rearing, fry are moved from vertical stack incubators to eleven outside raceways. Density and flow indices are projected to average 0.35 and 1.30, respectively in mid June when the fingerlings will be marked and moved to the final rearing ponds. Final rearing continues in the rearing ponds until release, which will begin in mid-March and extends to late April 2010. Final rearing density and flow indices are projected to average 0.19 and 2.17 respectively at the beginning of release. During release some smolts are collected using a seine and loaded onto transport trucks for release at the designated remote locations. The remaining fish will be volitionally released into Rapid River. *Ralph Steiner*

2.5.5.3. Juvenile monitoring and evaluation - Marking will be performed in June of 2009 and include 100% AD-clips and 100,000 CWT. During marking the fingerlings will be moved from raceways to rearing ponds. All rearing units will be sampled twice/month for weight. Samples are comprised of at least 300 fish/rearing unit. At the end of each month, 60 fish sub-samples are measured to determine average total length and condition factor. Starting the month marking is completed and continuing until release, a quality check of AD-clips will be performed on the sub-samples and fish will be categorized as full-clip, partial-clip, or no-clip. In addition, about 52,000 PIT-tags may be implanted during the first week of February 2010 for CSS. *Ralph Steiner*

2.5.5.4. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating

agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The pre-liberation sample will consist of 60 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. One prophylactic feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg for 28 days. *Doug Munson*

2.5.5.5. Projected release - Release of BY08 smolts is expected to be in March and April of 2010. Pursuant to U.S. vs. OR 2008 – 2017 Management Agreement Table B1, release sites will include Rapid River, the Snake River below Hells Canyon Dam, and the Little Salmon River. For production at or above 2.5 million, releases will be 2.5 million into Rapid River and alternating releases of 100,000 to Hells Canyon and 50,000 to the Little Salmon River. It is expected that smolts will be transported to the Snake River by IPC tanker trucks and released at the boat ramp below Hells Canyon Dam and to the Little Salmon River for release at Pine Hurst. *Ralph Steiner*

2.5.5.6. Excess production strategies - Refer to section 2.5.5.5. *Ralph Steiner*

2.5.5.7. Transportation strategies - Transport will take place in oxygenated Rapid River water at 0.5 lbs/gallon. The remaining smolts will be released volitionally from Rapid River FH directly into Rapid River from March to April 2010. *Ralph Steiner*

2.5.5.8. Communication - Monthly Production Summaries and a Monthly Narrative Report are submitted to the IDFG Anadromous Fish Hatchery Supervisor and IPC. Release groups will be reported to the IDFG Fisheries Bureau via annual Marked Release Summary and Idaho Fish and Game Fish Release Database and to the IDFG Research Bureau via the Data Entry Form for Release Database. *Ralph Steiner*

2.5.6 Oxbow Fish Hatchery - NA

2.5.7 Eagle Fish Hatchery-NA

2.5.8 Shoshone Bannock Tribes Egg Box Program

The SBT initiated an in-stream egg incubation program in Dollar Creek, a tributary of the South Fork Salmon River to maintain, rehabilitate, and enhance salmon population viability. Eyed summer Chinook eggs are placed into hatch-boxes in late fall, incubated in stream water, and allowed to volitionally emigrate at approximately the same time as fry in the natural system. This supplementation activity is designed to mimic natural production and develop a naturally spawning tributary component of the SFSR.

2.5.8.1. Production status - In 2008, IDFG spawned adult Chinook salmon at the South Fork Salmon River and transferred 322,620 eyed eggs in Dollar Creek. The SBT will remove incubators and count dead eggs in the spring, upon emergence of fry.

Lytle Denny/Kurt Tardy

2.6 Brood Year 2009 Chinook Salmon

2.6.1 Sawtooth Fish Hatchery

The LSRCP has a mitigation goal to provide adult returns of 19,445 adult Chinook above Lower Granite Dam annually. The SFH was constructed from 1983-1985 and began operations in 1985 to contribute to this adult spring Chinook salmon goal to return 11,310 to the SFH, 6,090 to the East Fork Salmon River and 2,045 to Valley Creek (based on a SAR of 0.87%). The original production design for SFH was for 2.3 million smolts including 1.3 million smolts in the Salmon River at SFH, 700,000 for the East Fork Salmon River and 300,000 smolts released in Valley Creek. The Valley Creek component of the program has never been pursued and the East Fork Salmon River component was changed in 1998 to a natural production program. Approximately, 350 females and 350 males are needed for broodstock for the SFH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality. This brood level will provide 1.5 million green eggs at 4,300 egg fecundity and 1.3 million smolts at an average of 88% eyed egg-to-smolt survival to meet the SFH component. An additional 250 pairs are required to reach the original production design of 2.3 million smolts. Currently, SFH has sufficient specific, pathogen-free water to rear 600,000 parr to 7 cm target size prior to transfer to final rearing on raw river water.

2.6.1.1. Projected adult return – An estimate of 4,101 hatchery adults will return. *Sam Sharr*

2.6.1.2. Ladder operation - Depending on spring runoff conditions, ladder and trap operations will begin between mid-May and mid-June and continue through Labor Day weekend of 2009. Trapped fish are removed daily, examined for marks, gender, injuries, treated with injectable erythromycin as necessary, and either placed into one of three adult holding ponds or released directly into the Salmon River above the hatchery, depending upon what mark or gender the fish may have. Unmarked fish are released above the hatchery intake after daily trap operations have ended. Brood fish are generally made up of marked hatchery fish. This year adult Chinook may be selected for both integrated and supplementation groups. Forecasted adult broodstock need is 900 fish. *Brent Snider*

2.6.1.3. Adult fish health - Brood fish trapped at this facility will be examined for pathogens during routine spawning. Upon arrival at the trap, adult Chinook salmon will be injected with a 20 mg/kg intra-peritoneal injection of erythromycin to control *Renibacterium*. To reduce prespawning mortality due to *Ichthyophthirius multifiliis*, adult holding water will be treated with 167 mg/l formalin for up to 7 days per week. Once water temperatures exceed 65°F, an extended formalin treatment of 40 mg/l for 6 hours will be implemented if *I. multifiliis* is detected (under veterinary extra-label prescription). All brood females will be sampled for *Renibacterium salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production, unless egg take needs are not met. Sixty Chinook salmon carcasses of fish that will be released above the Sawtooth FH weir to spawn naturally may be sampled for viral

replicating agents to ascertain IHNV prevalence, estimate risk of horizontal infection to Sawtooth FH production fish, and to facilitate the decision process in regards to the timing of fish production events. Brood Chinook salmon will be examined for viral replicating agents (60 fish by ovarian fluid sample and 30 fish will have kidney/spleen sample taken for viral assay). A 20 fish sample will be required to monitor *Myxobolus cerebralis* prevalence. The APHIS veterinarian-in-charge will be notified if reportable pathogens are detected. Pre-spawning mortality of adult spring Chinook salmon will be categorized by suspected cause.

Neither excess adult fish nor carcasses will not be transferred out of the upper Salmon River Basin due to whirling disease concerns.

Egg inventory in December will be available to EFHL so as to make predictions for erythromycin medicated feed pre-mix needs. *Doug Munson*

2.6.1.4. Adult outplanting/marking - To be determined prior to trapping in 2009. All unmarked Chinook will be released above the weir. Marking of released Chinook will follow ISS Research protocols. Adult outplants may occur in area waters including Yankee Fork Salmon River. *David Venditti/Brent Snider/Lytle Denny*

2.6.1.5. Carcass disposition: - Carcasses will be placed into totes in the back of a refrigerated freezer trailer. At the end of the season these carcasses will be taken to a rendering plant. Identified excess hatchery fish will be ponded separate from broodstock to be available for subsistence uses then provided to Tribal and charitable organizations. These excess fish will not be treated with injectable erythromycin nor anesthetized with MS-222 nor treated with formalin. *Brent Snider*

2.6.1.6. Adult monitoring and evaluation - Adults will be treated with formalin at least three times a week and up to seven days per week depending on river water temperatures and fish health. Pre-spawning mortalities will be investigated to determine the cause of death with fish health samples being sent to the Eagle Fish Health Lab. Genetic samples will be collected from all unmarked fish and all hatchery spawned broodstock. *Brent Snider*

Shoshone-Bannock Tribes – The SBT will operculum punch, genotype, and phenotype adult hatchery-origin Chinook salmon outplanted in the Yankee Fork Salmon River. *Lytle Denny*

2.6.1.7. Spawning/egg take plans, mating protocol - Approximately, 450 females and 450 males are needed for broodstock for the Sawtooth FH spring Chinook salmon program. Marked hatchery fish will be spawned with marked hatchery fish across brood years where possible using the following spawning protocol; > 100 pairs then 1m: 1f random cross, 50 to 100 pair then 2m : 1f split random cross , 25 to 50 pair then 3m: 1f split random cross and < 25 pair then 4m : 1f split random cross. The split random cross includes eggs from one female being split in equal groups of one, two, three to four then each group fertilized by one male. After fertilization the eggs are recombined into a single group for incubation

and water hardening. If cryopreserved sperm is needed fill out request form (Appendix A) Assistance will be provided to NPT cryopreservation program. *Brent Snider/Bill Young*

2.6.1.8. Egg incubation - Eggs will be water hardened and following label directions of buffered PVP iodine. Formalin will be added to each incubation stack to retard fungus development daily at a rate of 1,667 ppm (15-min drip). Formalin treatments will be initiated 2 days following spawning and continue until immediately prior to enumeration. After eggs manifest a strong “eye” the eggs are sorted and enumerated mechanically. Likely two female’s eggs will be incubated in a single incubation tray. *Brent Snider*

2.6.1.9. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The preliberation sample will consist of 60 randomly collected fish that will be examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede’s organosomatic index will also be performed on these fish. This sample will be taken within 45 days of release. One prophylactic feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg for 28 days. The APHIS veterinarian-in-charge will be notified if reportable pathogens are detected. *Doug Munson*

2.6.1.10. Communication - Final plans will be determined when fish run projection is clear. Discussion with ISS project leaders, IDFG, SBT, and LSRCP is ongoing. Planning coordination occurs with NPT for cryopreservation program. Monthly hatchery narrative reports are available to all requesting to be included on the distribution list. Summary run report, Annual Operation and Maintenance report and final Brood Year report are available after completion and upon request. Weekly adult trapping information is available on the IDFG website. *Brent Snider*

2.6.2 McCall Fish Hatchery

McCall FH requires 1,380 returning SFSR reserve summer Chinook salmon to support program release objectives of 300,000 eyed eggs (SBT Dollar Creek in-stream incubator boxes), 285,000 green eggs (Selway River summer Chinook introduction to be reared at Clearwater FH to smolt) and a 1.0 million smolt release at Knox Bridge on the South Fork Salmon River (MCFH Hatchery production goal). To accomplish this it is estimated that 612 females and 768 males (including 31 jacks) need to be ponded as brood stock. On average this should allow for spawning of 444 females given an average pre-spawning mortality rate of 25%. A 1:1 (male to female) spawning ratio will be used and males will be killed following milt collection. Assuming an effective BKD High culling rate of 6% and an average fecundity of 4,500 eggs per female would provide a total of 1,867,500 green eggs for various program uses. Given an average eye-up rate of 85% and a rearing mortality rate of 4%, post eye-up at MCFH, should allow for a goal release of 1,000,000 smolts, 300,000 eyed eggs and 285,000 green eggs. Overall, MCFH’s adult return goal is 8,000 SFSR summer Chinook above Lower Granite Dam. Additionally, MCFH rears up to 100,000 Johnson Creek origin summer Chinook salmon, to smolt, annually.

2.6.2.1. Projected adult return – An estimated 20,506 adult hatchery Chinook will return.
Sam Sharr

2.6.2.2. Ladder operation - The SFSR weir will be installed after high water when river flows begin to subside. The bridge/weir design will allow for an earlier placement and is tentatively expected to occur when the F.S. USGS Krassel Gauging Station staff reading reaches 4.0 to 4.2; typically the second week of June. Hatchery personnel will monitor flows physically at the SFSR and on-line to determine the appropriate river stage when to lower weir panels.

Upstream migration of returning salmon will be stopped by the SFSR weir allowing for adult interception in the adjoining trap. All Chinook will be processed through the trap where they will be identified by mark type, sexed, measured, scanned for PIT tags and any definable injuries will be noted. Unmarked adults will not be injected with erythromycin but will be opercle punched prior to being passed upstream to spawn naturally. No jacks receive an erythromycin injection. A study to evaluate the need for injecting reserve salmon intended for brood stock will be initiated during the 2009 trapping year. A portion (approximately 50%) of held brood stock will be injected with erythromycin at a rate of 10 mg/kg and be differentially marked from those that do not receive this antibiotic. Salmon intended as broodstock will be placed into the holding ponds separated by sex. Excess reserve Chinook not intended for use as brood stock will not be injected with erythromycin but will be opercle punched and placed into a subdivided section of the female holding pond until the time they are either loaded onto a truck for transport downstream near Roaring Creek (during fisheries) or are dispatched for subsistence purposes.

During periods of heavy fish movement, access into the trap will be blocked by means of pickets inserted at the end of the ladder once approximately 400 fish have entered the trap to prevent potential smothering. Trapping operations will continue through the end of spawning to a point when no fish have been trapped for 1 week and then water will be shut off.

All unmarked returning salmon will be visibly checked for the presence of any detectable elastomer mark; indicating the fish to be a Johnson Creek supplementation “stray.” Any Johnson Creek strays encountered will be segregated, in a method to be determined, and then transferred to Nez Perce fishery personnel who will be responsible for transporting/releasing the fish into Johnson Creek. All unmarked salmon will be scanned using a coded-wire-tag detection wand as part of being processed through the SFSR Trap. On a positive CWT detection, additional attention will be exercised to check for the possible presence of an elastomer mark. If no elastomer mark is detected, returning Chinook that have no marks with CWT will be killed and the snout collected for coded-wire-tag analysis. *Gene McPherson/ Steve Kammeyer*

2.6.2.3. McCall Adult fish health - A portion of broodstock trapped at the South Fork Trap on the SFSR will be injected by an intra-peritoneal route with a 10 mg/kg dose of erythromycin to reduce pre-spawning mortality to *Renibacterium*. The remainder of

ponded broodstock salmon will not be injected and differentially marked to evaluate the efficacy of this antibiotic. Natural summer Chinook salmon passed above the SFSR weir will not be injected with erythromycin. All brood females will be sampled for *Renibacterium salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production. Ovarian fluids from 60 females and kidney/spleen tissues from 30 fish will be collected for viral replicating agent examination, while head wedges will be collected from 20 fish for *Myxobolus cerebralis* examination. The APHIS veterinarian-in-charge will be notified of any reportable pathogen. Pre-spawning mortality of adult summer Chinook salmon will be categorized by suspected cause. *Doug Munson*

2.6.2.4. Adult outplanting/marking - Priority use of reserve Chinook, in excess of hatchery needs, is to provide additional harvest opportunity during sport and tribal seasons. An opercle punch will be used as an identifier to designate these fish and they will not be injected with erythromycin. Fish will be transported to a site near Roaring Creek for release. A portion of the “excess” reserve adults/ jacks may be designated and dispatched for subsistence uses then provided to Tribal and charitable organizations. These fish will not be injected with erythromycin. *Gene McPherson/Steve Kammeyer*

2.6.2.5. Carcass disposition - Pre-spawn mortalities will be returned to the SFSR for nutrient supplement at a specified location immediately downstream from the trap water intake. Spawning carcasses will be transported and returned to the SFSR at upstream locations to be determined by the IDFG Regional Anadromous Fishery Biologist as nutrient supplement. These fish will have been injected with erythromycin and are not approved for subsistence uses. Prior to disposal spawning tags will be removed and the tail will be completely severed from the body to identify these fish for those conducting spawning ground surveys. All female spawning carcasses exhibiting gross internal signs consistent for BKD, as determined by fish pathologists, will be frozen then disposed of in a public landfill. *Gene McPherson/Steve Kammeyer*

2.6.2.6. Adult monitoring and evaluation - Tissue samples will be collected from all males and females used for brood stock, as well as from natural origin fish released above the weir, for the genetics baseline. All fish trapped will be measured for length, examined for marks/external tags, and scanned for PIT's and CWTs. All snouts collected will be sent to the Nampa Research office for CWT extraction and processing. *John Cassinelli*

The Nez Perce Tribe is operating a PIT tag array in the upper mainstem South Fork Salmon River (river kilometer 522.303.215.65) to help evaluate the survival of the juvenile releases out of the SFSR and survival back as adults. This PIT tag array will provide real time estimates of adults into the SFSR and help evaluate natural and hatchery composition. Information about PIT tag recapture information can be viewed at ["www.ptocentral.org/dbaccess/InStrmDtctn/InStrmDtctn_query.html"](http://www.ptocentral.org/dbaccess/InStrmDtctn/InStrmDtctn_query.html) and the instream site is “KRS”. *Bill Young/Jason Vogel*.

2.6.2.7. Spawning/egg take plans, mating protocol - A change in spawning protocols will be initiated for BY2009 summer Chinook in response to enhanced egg requests, continued

direction to provide genetic samples that will allow for parental genetic analysis and the need to reduce the number of males being held for spawn-taking activities. All reserve salmon will be spawned uniquely at a 1:1 (Male to Female) spawning ratio. At the time of spawning, genetic samples will be collected from each spawning pair. To facilitate this action, males will be killed following milt collection. A minimum of 444 reserve summer Chinook females will need to be spawned to meet program objectives as: 291 females (to provide for 1,000,000 MCFH smolt production), 85 females (to produce 300,000 eyed eggs for SBT Dollar Creek egg boxes) and 68 females (to provide 285,000 green eggs for the introduction of summer Chinook to the Selway River). Key assumptions made include: 4,500 average fecundity, 6% effective BKD High culling rate and an 85% eye-up rate. Spawn taking activities will take place on Tuesdays and Fridays and may potentially begin at primary sort - August 11, 2009. Daily spawning activities are limited to a maximum of 120 females per day. A kidney sample, for ELISA BKD analysis, will be collected from all females spawned. Ovarian fluid and cranial wedges, number to be determined by fish pathologists, will be collected from a portion of the spawned females for viral testing and whirling disease. All eggs collected will be linked to tracking fish identification number to an individual egg tray that will correspond to disease samples collected. *Gene McPherson/Steve Kammeyer*

2.6.2.8. Egg incubation - Hatchery production eggs and eggs spawned for SBT egg boxes will be returned to McCall FH for incubation in Heath style incubators trays. Reserve eggs will be loaded into trays as two females per tray. Green eggs collected for summer Chinook introduction in the Selway River will be transported to Clearwater FH, following water-hardening at the SFSR Trap, by personnel from the Nez Perce Tribe. Formalin will be added to each incubation stack to retard fungus development daily at a rate of 1,667 ppm (10-min drip). Formalin treatments will be initiated 2 days following spawning and continue until immediately prior to hatch. A light “rodding” of trays to remove sediments will begin weekly once eggs accumulate 400 TU’s. At 550-600 TU’s eggs will be shocked then picked/ enumerated the following day. Following enumeration eyed eggs coming from females having ELISA optical densities greater than 0.250 will be discarded. Once all eggs have been enumerated additional eggs may be culled, based on ELISA results, to reduce inventory to achieve a “full capacity” hatchery level. A secondary “picks” will be performed following complete egg hatch (1,000 – 1,050 TU’s). Fry will be transferred to indoor vats for early rearing at swim-up (1,700 – 1,750 TU’s). *Gene McPherson/Steve Kammeyer*

2.6.2.9. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The preliberation sample will consist of 60 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede’s organosomatic index will also be performed on these fish. The pre-liberation sample will be performed within 45 days of release. No prophylactic erythromycin medicated feed treatments are scheduled for BY2009 SFSR SU to be reared at MCFH. The APHIS veterinarian-in-charge will be notified of any reportable pathogen. *Doug Munson*

2.6.2.10. Communication - As eggs are enumerated McCall FH Manager will coordinate with SBT fishery personnel to determine a schedule to transfer eyed eggs. Spawning summaries will be included in the annual run report. *Gene McPherson/Steve Kammeyer*

2.6.3 Johnson Creek

See JCAPE project goals in Section 2.4.3 above.

2.6.3.1. Projected adult return – The 2009 pre-season adult prediction for Johnson Creek is 353 natural origin (NOR) and 483 HOR adults. Based on this value, the JCAPE project will be collecting one (1) of every four (4) natural origin fish by sex to utilize for brood stock for 2009. This collection is to begin with the first fish collected to ensure that a representative sample of broodstock is collected across the entire run trapped. This collection rate may be modified during the season as adult PIT tag detections begin at the Columbia and Snake River Dams. As the trapping season progresses, we will continue to evaluate the number of NOR adults that have returned. Brood stock retention will be adjusted accordingly throughout the season to allow for a maximum number of NOR spawners to be released upstream while still retaining ample brood stock for production goals.

If actual NOR adult numbers exceed our prediction we will adjust our collection rate and/or return excess collected adults back to Johnson Creek prior to the start of spawning. As the trapping season progresses, we would continue to evaluate the number of NOR adults that have returned and make adjustments to the collection rate as needed to meet the brood stock size of 80 fish. On or about August 1, 2009, the adult trap numbers will be evaluated to determine the likelihood of achieving broodstock requirements. If more than enough brood stock has been trapped by this time, those extra fish will be returned to Johnson Creek for natural spawning. If fewer than anticipated numbers of broodstock have been collected, the JCAPE project will consult with NOAA Fisheries to determine if a change in broodstock collection rates needs to be implemented.

The Johnson Creek 2009 pre-season prediction was calculated using run-reconstruction information from previous brood year returns. The average age class structure (NOR fish were determined by PIT tags, fin ray analysis and fork length breakouts, while HOR fish were determined with PIT tags, CWT and VIE marks) by brood year and origin type of adults returning to Johnson Creek and the estimated number of juvenile migrants by brood year at Lower Granite Dam (LGD) was used to estimate the run size for future generations of fish. The estimated number of age 3 fish was calculated by multiplying the estimated number of brood year 2006 migrants at LGD by the average number of juvenile migrants at LGD that converted to age 3 fish at Johnson Creek over the years (age 3 adult fish returns at Johnson Creek divided by the estimated number of migrants at LGD within a brood year). The estimated number of age 4 fish was calculated by multiplying the average number of 3 year old fish returning to Johnson Creek that converted to age 4 (within brood year) by the number of age 3 fish returning from brood year 2005. The estimated number of age 5 fish was calculated by multiplying the average number of age 3 and age 4 fish

combined that converted to age 5 (within brood year) by the total number of age 3 and age 4 fish returning from brood year 2004. *John Gebhards/Craig Rabe*

2.6.3.2. Weir operation - The Johnson Creek weir will be installed when spring water flows subside to 700 cfs or below, in late May to mid June. Fish will be processed out of the trap daily. The weir will be removed when no fish have been captured for seven consecutive days, usually in mid September. *John Gebhards*

2.6.3.3. Adult fish health - All fish (excluding jacks) trapped on Johnson Creek will be injected via an intraperitoneal route with 20 mg/kg erythromycin prior to transport to the South Fork Trap on the South Fork of the Salmon River or released back into Johnson Creek. During spawning, all brood females will be sampled for *Renibacterium salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production. Brood fish will also be examined for viral replicating agents and *Myxobolus cerebralis*. Eggs from parents with serious pathogens will be culled. The APHIS veterinarian-in-charge will be notified of any reportable pathogens. *John Gebhards/Doug Munson*

2.6.3.4. Adult outplanting/marking - Adult Chinook captured at Johnson Creek will either be: 1) released upstream for natural spawning; 2) selected as broodstock and transported to the SFSR (natural fish only); 3) released downstream if captured in the downstream trap; or 4) euthanized and placed into Johnson Creek for nutrient enhancement (stray AD fin clipped fish only). All fish released above the weir will be opercle tagged. Broodstock transported to the SFSR will both be opercle and floy tagged. *John Gebhards*

2.6.3.5. Carcass disposition - All trap/weir, pre-spawning mortalities and spawned out carcasses will be transported back to Johnson Creek by NPT fishery personnel for nutrient enhancement. *John Gebhards*

2.6.3.6. Adult monitoring and evaluation - The JCAPE project is integrated with a comprehensive M&E program that follows a detailed M&E Plan (Vogel et al. 2005). The monitoring and evaluation program quantifies 41 regionally standardized performance measures to evaluate the supplementation program. These standard performance measures help inform decisions on Abundance, Survival-Productivity, Distribution, Genetic, Life History, and Habitat. The evaluation plan utilizes comparative performance tests at multiple life stages and involves treatment vs natural experiments and repeated measures designs (treatment vs reference). This program, initiated prior to the first releases of supplemented fish, has been collecting baseline life-history characteristic information, to examine survival of the wild fish in Johnson Creek and any potential effects that the supplementation program may have on the natural population. *John Gebhards/Craig Rabe*

2.6.3.7. Spawning/egg take plans, mating protocol - A maximum of 40 natural origin Johnson Creek adult pairs (including jacks) may be taken for broodstock and transported to the South Fork Trap for holding. Broodstock will be marked with a numbered tyvek opercle tag and a numbered floy tag to ensure identification from SFSR broodstock. Johnson Creek broodstock are spawned on the same days as the SFSR broodstock. Spawn

pairing will be one male to one female. An additional male may be used when sperm quantity or quality is questionable. Eggs from 32 females allow for high BKD culling and to maintain smolt production near 100,000.

The JCAPE project has cryopreserved semen available for use in spawning (Appendix A). The use of these samples would follow the guidelines established by the NPT Cryopreservation project and with approval from NOAA Fisheries. *John Gebhards*

2.6.3.8. Egg incubation - Johnson Creek origin eggs will be transported in individual egg bags to the McCall FH for incubation in Heath style incubators trays. Eggs will be loaded into trays at one female per tray. Incubation procedures are the same as those used for SFSR production eggs. *John Gebhards*

2.6.3.9. Juvenile fish health - These fish will be reared at McCall FH and will follow McCall FH fish health protocols. The Eagle Fish Health Laboratory will provide diagnostic and inspection services to these fish. The pre-liberation sample will consist of 60 randomly collected fish and examined for *Renibacterium salmoninarum*, parasites, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The pre-liberation sample will be performed within 45 days of release. *John Gebhards/Doug Munson*

2.6.3.10. Communication - The JCAPE project will provide weekly updates during the adult trapping and spawning season. These updates will be distributed via e-mail. The JCAPE project is responsible for preparing annual brood year reports that are submitted to both NOAA Fisheries and BPA. These reports are not currently sent to the contact list (Section 5), but are available upon request or through BPA's website or from the JCAPE project staff.

The JCAPE project is required to prepare and submit as a condition of ESA Section 10 permitting an Annual Operation Plan (AOP) for the JCAPE project to NOAA Fisheries. Once the AOP is approved by NOAA Fisheries, it will be available for upon request. *John Gebhards*

2.6.4 Pahsimeroi Fish Hatchery

The mitigation goal for Pahsimeroi FH is to release up to 1,000,000 summer Chinook smolts annually into the Pahsimeroi River. Approximately 300 pair of adult summer Chinook is required to meet this mitigation when considering pre-spawning mortality and culling of disease positive adults.

2.6.4.1. Projected adult return – Current run forecast is 13,182 adult hatchery fish. *Sam Sharr*

2.6.4.2. Ladder operation - Projected to operate from June 15, 2009 through October 5, 2009. The trap will be checked weekdays and usually will not be checked on weekends.

Additionally, the ladder can be shut off during heavy weekend fish periods to avoid overloading the adult fish trap. *Todd Garlie*

2.6.4.3. Adult fish health - Poned salmon will be treated with 60 minute 167 ppm flow-through formalin treatments to control mycotic infections. These treatments will be administered 3 times per week beginning July 1, 2009 and ending September 15, 2009. Each fish that is to be ponded for production or released for natural spawning is to receive an intra-peritoneal injection of erythromycin at a rate of 20 mg/kg body weight for BKD management. Surplus fish killed for charitable/tribal giveaway are not injected.

Adult summer Chinook salmon will be trapped at this facility and injected with 20 mg/kg of erythromycin via an intra-peritoneal route. All brood females will be sampled for *Renibacterium salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production. Sixty ovarian fluids samples and 30 tissue samples (kidney/spleen) will be collected from 90 females and examined for viral replicating agents. Twenty head wedges will be removed from returning adult salmon to ascertain *Myxobolus cerebralis* prevalence. The APHIS veterinarian-in-charge will be notified of any reportable pathogens detected in brood fish sampling. Pre-spawning mortality of adult summer Chinook salmon will be categorized by suspected cause.

Neither excess adult fish nor carcasses will not be transferred out of the upper Salmon River Basin due to whirling disease concerns.

Egg inventory in December will be available to EFHL so as to make predictions for erythromycin medicated feed pre-mix needs. *Doug Munson*

2.6.4.4. Adult outplanting/marking – All natural origin Chinook will be released above the weir for natural spawning. If enough Chinook return to provide a fishery, out-plant sites will be determined by the IDFG Fisheries Bureau. *Todd Garlie*

2.6.4.5. Carcass disposition - All fish held for spawning are treated with formalin and erythromycin, so all spawned carcasses are placed in a refrigerated unit and frozen. At the conclusion of the spawning season, the frozen carcasses are transported to a rendering plant. Adults and jacks in excess of spawning needs and not suitable for supplementation use will be given to tribes/charities as per direction by the IDFG's Fisheries Bureau. *Todd Garlie*

2.6.4.6. Adult monitoring and evaluation – Tissue samples will be collected from all male and female adults that are used as brood stock for the genetics baseline. Additionally, tissue samples will be collected from all adults passed upstream of the weir. This sampling is part of the reproductive success study initiated in 2002. All fish trapped will be measured for length, examined for marks/external tags, and scanned for PITs and CWTs. All snouts collected will be sent to the Nampa Research office for CWT extraction and processing. If the current run forecast is correct, a representative sample throughout the run will be measured for length. Adults will also be examined for marks/external tags, and scanned for PITs and CWTs. *John Cassinelli*

2.6.4.7. Spawning/egg take plans, mating protocol - The first sort and spawn is tentatively planned for September 1, 2009. Spawning will occur twice per week, usually on Monday and Thursday. A spawning ratio of 1:1 will be used. Jacks will be limited to 10% of the spawning population. The spawning goal at this time is to collect approximately 1,283,000 green eggs to yield the FERC mitigation target of 1,000,000 smolts for subsequent release in 2011.

2.6.4.8. Egg incubation – In 2009 all eggs collected at Lower Pahsimeroi FH will be transferred to Upper Pahsimeroi FH for incubation and early rearing on well water and secondary rearing on river water. All eggs will be incubated to eye-up at Pahsimeroi FH using well water chilled to 44°F. The incubator trays are loaded at the rate of one female per tray. From 48 hours after spawning until eye-up, eggs at Pahsimeroi FH are treated three times a week with a 1,667-ppm formalin treatment to prevent fungal growth on the eggs. At eye up the eggs are shocked twice by dropping them into a bucket of water from a height of approximately 16 inches. Dead eggs are picked and enumerated with a Jensorter electronic counter/picker. Early rearing will take place in the Upper Pahsimeroi FH vat room on 50°F well water. Target size for ponding is set to 100fpp to achieve a refractory WD size prior to exposure to river water containing the WD causative agent. Feeding regime will be regulated to achieve this size by May 21, 2010 prior to marking and subsequent transfer to Upper Pahsimeroi FH rearing ponds. *Todd Garlie*

2.6.4.9. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. Due to the perennial infestation of *Ichthyophthirius multifiliis*, which kills thousands of fish per year, prophylactic treatments of formalin, at a 167 mg/l will be applied three times per week to limit mortalities to this parasite during July and August, 2010. The pre-liberation sample will consist of 60 randomly collected fish and examined for *Renibacterium salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. One prophylactic feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg. Egg inventory numbers will be available to EFHL in December, 2009 to facilitate erythromycin medicated feed pre-mix needs. *Doug Munson*

2.6.4.10. Communication - Pahsimeroi FH distributes trapping and spawning updates three times per week during the Chinook run. These data summaries are provided electronically to a distribution list. This data can also be utilized in the development of a fishery.

2.6.4.11 Proposed research - The naturally spawning Pahsimeroi River summer Chinook salmon population exhibits a unique juvenile life history strategy, where a portion of each cohort migrates to the Pacific Ocean as sub-yearlings or age-0 smolts. It would be beneficial to know if the hatchery population retains this unique life history type. The ICTRT has rated the Pahsimeroi River population at high risk for all metrics considered.

Demonstrating that this novel life history trait persists in the hatchery population could indicate that the low levels of allozyme and microsatellite diversity observed between the natural and hatchery populations may not indicate a large divergence from the natural genotype. Hatchery management in Idaho is moving towards integrated programs, and the Pahsimeroi Hatchery has been identified as a facility where this would occur. If we can demonstrate that the hatchery stock maintains the age-0 phenotype, this would suggest that the Pahsimeroi would be a good candidate for integration

2.6.5 Rapid River Fish Hatchery

Approximately, 2,500 Chinook are needed annually for brood stock for the Rapid River FH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality at the 20-year average as well as average female culling required by disease management constraints and average fecundity. This brood level will provide 3.4 million green eggs and 3.0 million smolts at an average of 88% eyed egg-to-smolt survival to meet the smolt release goals.

2.6.5.1. Projected adult return - Adult return projections are 21,092 hatchery adults. *Sam Sharr/Ralph Steiner*

2.6.5.2. Ladder operation - The Rapid River FH management practices related to broodstock collection for BY2009 will be based on projected numbers of returning salmon. The trapping brood stock collection and fish disposition will be modified to accommodate projected returns as projections are refined during adult migration. The adult trapping facility will be put into operation March 16, 2009. Spring Chinook are expected to arrive at the trap in May. Marked hatchery fish will be anesthetized, counted, injected with Gallimycin, and transported to the hatchery holding ponds for broodstock. Arriving spring Chinook salmon will not be sexed because dimorphism is not expressed when they arrive at the trap. Marked spring Chinook salmon will be held for broodstock to fill Rapid River FH mitigation needs and to supply eggs to other projects. Broodstock will include a cross-section of the run. Trapping will continue through the first week of September. When trapping ceases, the adult trap will be reconfigured to allow migration around the weir. During trapping extreme conditions may occur, and the trap may be closed until trapping can resume. *Ralph Steiner*

2.6.5.3. Adult fish health - Adult spring Chinook salmon will be trapped at this facility. Upon arrival into the trap, all adult salmon will receive a 20 mg/kg intra-peritoneal injection of erythromycin to limit pre-spawning mortality to *Renibacterium*. All brood females will be sampled for *R. salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production. The final culling ELISA optical density will be 0.25. A total of 90 fish will be sampled by a combination of 30 tissue samples (kidney/spleen) and 60 ovarian fluid samples for viral replicating agents. Eggs were water hardened/disinfected with a 100 mg/l solution of iodine. The APHIS veterinarian-in-charge will be notified of any reportable pathogens detected in adult or production fish sampling. Pre-spawning mortality of adult spring Chinook salmon will be categorized by suspected cause. Formalin treatments will start upon ponding of

broodstock. Formalin treatments will be applied at 167 mg/l for seven days a week. Egg inventory numbers will be available to EFHL to facilitate erythromycin medicated feed pre-mix orders. *Doug Munson*

2.6.5.4. Adult outplanting/markings - If broodstock needs are exceeded, fish will be provided to the tribe and humanitarian organizations. As the run progresses, the number of fish entering the trap may exceed hatchery broodstock requirements. At that time, hatchery fish may be transported back into the Salmon River or Little Salmon River to re-enter the fisheries, or be transported to other drainages to provide fishing opportunity or supplementation. These hatchery fish will be loaded directly from the fish trap and will not be anesthetized or injected. The decision to release hatchery fish will be made based on the number of rack returns, run size as projected by IDFG, and on the overall condition of fish trapped earlier in the run.

Ancillary species will enter the fish trap. All steelhead entering the trap will be sexed, measured, scanned for CWT and PIT, and given a right operculum punch to identify recaptures. Wild steelhead will be sampled for DNA and scales, and released into Rapid River above the weir. Hatchery steelhead will be released into the Little Salmon River about a mile above the confluence of Rapid River unless they scan positive for CWT. When a CWT is detected hatchery steelhead will be sacrificed and the snout collected. Bull trout entering the trap will be measured and processed based on protocol supplied by the United States Forest Service (USFS) Rocky Mountain Research Center. Unmarked Chinook will be counted, sexed, measured, given a right operculum punch, sampled for DNA, and released above the weir. *Ralph Steiner*

2.6.5.5. Carcass disposition - The carcasses will be frozen until the end of the spawning season and then hauled to a cold storage facility. *Ralph Steiner*

2.6.5.6. Adult monitoring and evaluation - The entire run will be electronically scanned for PIT-tags and scrutinized for jaw-tags, visual identification (VI) tags, radio transmitters, and fin clips. As fish are removed from the holding ponds broodstock will be scanned for PIT-tags and CWT. Snouts with a CWT will be collected, placed in a numbered plastic bag, and delivered to the marking lab after spawning. Samples will be collected from all spawned hatchery broodstock for DNA analysis. Additional samples will be taken from 30 individuals from the hatchery broodstock containing PIT-tags for know-age analysis. *Ralph Steiner*

2.6.5.7. Spawning/egg take plans, mating protocol - August 10, 2009 all adults will be collected, and sorted by sex. All ripe females will be spawned each spawn-day. Spawning will take place twice each week for each holding pond and continue through mid-September. We will employ a random cross of two males/female as recommended in IHOT guidelines. All cloudy eggs or eggs from females exhibiting gross signs of BKD will be discarded after consultation with staff from the EFHL on-site. After fertilization, the eggs will be transported to the incubation building for water hardening. Spawned female carcasses will be marked with a numbered tag, matched with an egg bucket number, and a tray number to facilitate tracking for ELISA BKD analysis. Carcasses will be

measured, scanned for PIT-tags and CWT. *Ralph Steiner* If cryopreserved sperm is needed fill out request form (Appendix A) Assistance will be provided to NPT cryopreservation program. *Bill Young*

2.6.5.8. Egg incubation - Single female/tray incubation will be the standard however it may be necessary to load two females/tray and/or transfer green eggs to Oxbow FH for initial incubation to achieve a goal of 3.4 million eyed eggs. Eggs will be water hardened in iodophore at 100 ppm for 30 minutes and placed in numbered trays facilitate tracking ELISA results. Upon receiving ELISA results, eggs will be segregated or culled based on titers >0.249. Hatchery personnel will be in regular communication with staff from the EFHL for guidance on culling and segregation. Beginning on the fourth day of incubation, all egg lots will be treated with formalin three times each week at 1,667 ppm for 15 minutes. This will continue until each egg lot accumulates 800 TU. At eye-up (approximately 500 TU), all egg lots will be shocked and picked using a Jentsorter™ model BM-4 picker/counter then returned to the cleaned incubators. A second pick will be performed at 750 TU. Hatching occurs about 800 TU. At 1,000 TU, all egg lots undergo another pick off to remove any remaining dead eggs or fry and eggshells. At 1,500 TU fry undergo a fourth pick off and swim-up fry are ponded at 1,750 TU. When the eggs have accumulated 300 TU incubator trays will be rodded weekly or more often if necessary throughout the incubation period to remove silt. *Ralph Steiner*

2.6.5.9. Fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The preliberation samples will consist of 60 randomly collected fish and examined for *Renibacterium salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. One prophylactic feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg. *Doug Munson*

2.6.5.10. Communication - Trap records will be updated on site and uploaded to the IDFG Fisheries Bureau daily and to IPC weekly. The Fisheries Release Database will be updated and uploaded at least weekly. Pit-tag files will be uploaded to PTAGIS as the run progresses. As incubation and rearing progresses, Monthly Production Summaries and a Monthly Narrative Report are submitted to the IDFG Anadromous Fish Hatchery Supervisor and IPC. Release groups will be reported to the IDFG Fisheries Bureau via annual Marked Release Summary and Idaho Fish and Game Fish Release Database and to the IDFG Research Bureau via the Data Entry Form for Release Database. *Ralph Steiner*

2.6.6 Oxbow Fish Hatchery

Adult Hatchery spring Chinook returning from Rapid River FH releases to Hells Canyon will be trapped at the Hells Canyon Fish Trap and transferred to Rapid River FH to provide broodstock necessary to achieve mitigation goals for Rapid River FH, and to provide information for analysis of run composition.

2.6.6.1. Projected adult return - Approximately, 2,500 spring Chinook are needed for broodstock for the Rapid River FH spring Chinook salmon program. Some of these fish may be trapped at the Hells Canyon Trap facility and transferred to Rapid River FH. *Kent Hills/Ralph Steiner*

2.6.6.2. Ladder operation - The Hells Canyon Trap will operate three days/week Monday – Wednesday as flows permit (less than 50k cfs). Trapping for spring Chinook salmon will begin in May and proceed to into July 2009 depending on returns to Rapid River FH. The trap is operated by IPC and fish are transported to Oxbow FH for holding or distribution. Spring Chinook salmon to be held for spawning will be held at Oxbow FH for transport to Rapid River FH weekly or more often depending on water temperatures. Fish to be transported to Rapid River FH will be loaded into a 1,000-gallon tanker and transported by IPC personnel. *Kent Hills/Ralph Steiner*

2.6.6.3. Adult fish health - Adult spring Chinook salmon to be held for broodstock will receive an intra-peritoneal injection of erythromycin at a dose of 20 mg/kg to limit pre-spawning mortality due to BKD. Once transported to Rapid River FH, these fish will receive the same culture and fish health protection as Chinook returning to this facility. *Doug Munson*

2.6.6.4. Adult out planting/marking - Depending on the number of returning adults additional marked adult hatchery spring Chinook may be trapped and shared between Idaho, Oregon, and the Nez Perce Tribe. Fish released into active fisheries will receive a right operculum punch. Dispersed fish will not be anesthetized or treated with antibiotics. Unmarked Chinook salmon will be counted, sexed, measured, given a right operculum punch to identify recaptures, and released into the Snake River below Hells Canyon Dam. They will not be anesthetized or treated with antibiotics. *Kent Hills/Ralph Steiner*

2.6.6.5. Carcass disposition - Carcasses from holding and trapping mortality will be placed into a garbage dumpster and picked up weekly by the local sanitation company. They will be transported to the Halfway transfer station and eventually to an approved ODEQ landfill. *Kent Hills*

2.6.6.6. Adult monitoring and evaluation - All fish entering the trap will be electronically scanned for PIT tags and scrutinized for jaw-tags, visual identification (VI) tags, radio transmitters, and fin clips. Each fish will receive a right operculum punch to identify Snake River returns. After being added to Rapid River FH broodstock, monitoring will be consistent with practices at Rapid River FH. *Kent Hills/ Ralph Steiner*

2.6.6.7. Spawning/egg take plans, mating protocol - NA. *Kent Hills/ Ralph Steiner*

2.6.6.8. Egg incubation - It may be necessary to transport green eggs from Rapid River FH to Oxbow FH for incubation. Eggs for transport will be placed in egg tubes and water hardened in coolers filled with 100-ppm iodophor for 30 minutes then, iodophor will be displaced from the coolers with well water. About one gallon of ice will be added, and the

coolers sealed for transport. When the green eggs arrive at Oxbow FH they will be disinfected in iodophor then placed in vertical incubation stacks at a rate of one female/tray. Green eggs will be incubated to eye-up, enumerated, picked, and returned to Rapid River FH. When they arrive at Rapid River FH they will be disinfected in iodophor and placed in vertical stack incubators. The EFHL will notify Oxbow FH with the results ELISA BKD analysis and culling will take place at Oxbow FH. *Kent Hills/Ralph Steiner*

2.6.6.9. Fish Health – Juvenile spring Chinook salmon are not reared at Oxbow FH. Juveniles will be reared at Rapid River FH and will receive the same fish health services as the Rapid River spring Chinook salmon. *Doug Munson*

2.6.6.10. Communication - Trapping information will be uploaded to the IDFG daily and release data will be uploaded at least weekly. Trap date will be sent to IPC weekly. *Kent Hills/Ralph Steiner*

2.6.7 Eagle Fish Hatchery -NA.

2.6.8 Shoshone Bannock Tribes Egg Box Program

To maintain, rehabilitate, and enhance salmon population viability, the SBT initiated an in-stream incubation program in Dollar Creek, a tributary of the South Fork Salmon River. Eyed summer Chinook eggs are placed into hatch-boxes in late fall, incubated in stream water, and allowed to volitionally emigrate at approximately the same time as fry in the natural system. This supplementation activity is designed to mimic natural production to develop a naturally spawning tributary component of the SFSR in order to increase abundance, genetic diversity, and productivity of summer Chinook salmon as well as increase knowledge of fishery management and hatchery supplementation.

2.6.8.1. Projected adult return – The current information on this project does not allow us to make accurate adult projections. *Lytle Denny*

2.6.8.2. Ladder operation – Same procedures and guidelines for McCall FH 2.6.2.2.

2.6.8.3. Adult fish health – Same procedures and guidelines for McCall FH 2.6.2.3.

2.6.8.4. Adult outplanting/markings – N/A

2.6.8.5. Carcass disposition – Same procedures and guidelines for McCall FH 2.6.2.5.

2.6.8.6. Monitoring and evaluation – All paired spawners will be fin-clipped (females) and operculum punched (males) to collect genetic tissue for future monitoring and evaluation activities as described by Jones and Ardren (2003). In-stream incubators will be visually checked monthly and data collected for cleanliness, water temperature, dissolved oxygen, conductivity, pH, flow velocity, sediment accumulation, and life stage for each box location. Future evaluations include pairing Dollar Creek with two control streams to compare fish densities and dispersal (treatment effect) through snorkeling and/or

electroshocking. Adult evaluation through redd counts occur annually. *Lytle Denny/Kurt Tardy*

2.6.8.7. Spawning/egg take plans, mating protocol – Approximately 88 reserve females, including potential for BKD culling, will be spawned and incubated at the McCall FH to produce 300,000 eyed eggs for the SBT in-stream incubation project in Dollar Creek. The in-stream program adheres to 1:1 spawning protocol. *Gene McPherson/Lytle Denny*

2.6.8.8. Egg incubation – Same procedures and guidelines for McCall FH 2.6.2.8. Once placed into in-stream hatch boxes, incubation will occur on stream water in the natural environment. *Lytle Denny*

2.6.8.9. Juvenile fish health - Health is estimated from visual observation only.

2.6.8.10. Communication - McCall FH and SBT personnel will coordinate to determine a schedule to spawn, obtain and transfer eyed eggs. Results and conclusions from the in-stream incubation project will be presented in an annual report. *Steve Kammeyer/Lytle Denny*

2.6.9 Yankee Fork Supplementation Project (YFCSS)

The goal of the YFCSS is to maintain, rehabilitate, and enhance salmon population viability with harvest potential, aid to spatial distribution, and contribute to diversity. In addition, supplementation action in Yankee Fork is necessary to prevent near-term extinction, avoid further losses of genetic variation, and promote recovery of the ESA listed population. Currently, parties are reviewing the Yankee Fork Hatchery and Genetics Management Plan and acknowledge the importance of accomplishing future short-term goals.

2.6.9.1. Production status – Chinook salmon releases were initiated in 2006 with the release of 135,934 smolts into the Yankee Fork Salmon River.

2.6.9.2 Projected adult return – The preseason run prediction for Yankee Fork based on the release of 135,934 BY04 smolts from Sawtooth Hatchery and a SAR of 0.3% is 100 five year old individuals. The estimated natural return is 82 fish.

2.6.9.3 Weir operation – Upon approval, the Yankee Fork portable picket weir is scheduled to be installed in the summer of 2009 and, thereafter, when flow drops to a level for safe installation. Weir site selection will be dependent on ease of access, installation, operation, and protection from vandalism.

2.6.9.4 Adult fish health – Adults will initially be inspected for any external fungi, which is a possible sign of ectoparasitic infestation. Samples for viral, bacterial, and parasitic disease agents will be taken at spawning. Viral assays are conducted on ovarian fluid and kidney samples from a number of spawned females characteristic of the broodstock are

analyzed in bacterial assays. Whirling disease will be tested for by obtaining head wedges from a proportion of the spawning broodstock.

2.6.9.5 Adult outplanting/marking – Three groups of Chinook salmon will be collected at the YFCSS weir: NOR, NOR/HOR, and HOR. Naturally spawned adults will not be marked. Supplementation adults (NOR/HOR) will be PIT tagged and/or coded-wire tagged. General production fish will also be PIT tagged and/or coded-wire tagged. Fish will be classified into one of the groups and numbered based on capture order. Broodstock will be collected in pairs to maintain a 1:1 spawning ratio of males to females. Coded-wire tag identification or genetic sampling can determine individual relatedness to limit artificial selection and maximize genetic variability by mating unrelated fish. Surplus hatchery-origin fish will be released above the upper Yankee Fork weir for natural spawning. There will be no limits placed on the number of hatchery-reared adults allowed to spawn naturally within Yankee Fork. All collected fish in excess of the number required for broodstock purposes will be immediately released above the Yankee Fork weir for natural spawning.

2.6.9.6 Carcass disposition – Adult holdings will be checked once an hour on a daily basis by trap tenders. Mortalities will be removed and data will be collected on date, time, sex, cause of death (if known), and body condition. Biological samples will be collected and placed in proper containers for later analysis. Mortalities will then be spread across the spawning habitat to help replenish depleted marine nutrients in the system.

2.6.9.7. Monitoring and evaluation – Broodstock males and females sampled for genetic analysis and parental assignment. Male samples obtained through an operculum punch; samples from females taken from a caudal fin clip. Scale samples obtained for age and life history determination as a contingency to tissue samples. Proportion of smolts tissue sampled prior to release for confirmation of either naturally produced or hatchery-produced adults returning to Yankee Fork weir. All samples stored in 95% ethanol for later analysis. Determine stratified random sampling sites in Yankee Fork to collect naturally spawned Chinook salmon above the Yankee Fork weir. Electroshocking used in accordance with NMFS ESA permits. Location, fork length, and mass of each individual recorded. Fin clips and scale samples taken from juveniles to link to adult parents and brood year. A proportion of smolts released are PIT tagged to monitor dispersal, emigration, and arrival at Lower Granite Dam by using the SURPH model. Adult returns are monitored through dam and weir counts, creel surveys, CWT information, redd surveys, spawning surveys, and carcass recoveries.

2.6.9.8 Spawning/egg take plans, mating protocol – Approximately 102 female and 102 male spring Chinook salmon are needed annually for broodstock. Males will only be spawned once. In cases of unequal broodstock collection, male holding mortality exceeds female, or late male maturation, males may be spawned twice. Spawning will occur by means of three mating schedules depending on the number of adult returns. Single pair mating (1:1 male to female spawning) will be utilized when there are 10 or more returning adult pairs (≥ 20 adults). Maturing fish will be randomly paired with an unrelated individual of the opposite sex. When adult returns are below 10 pairs (< 20 adults), diallel or systematic mating will be used. This mating will distribute diversity among progeny by

mating each female with every male. Eggs from each female will be split into separate sub-groups and fertilized with the milt of each male. In both methods, backup males will be retained to ensure fertilization. Excess males will be held over for the next spawning date or be segregated for gamete cyropreservation.

2.6.9.9 Egg incubation – Incubation for the YFCSS will occur at the Sawtooth Fish Hatchery. During all incubation periods and processes, pathogen-free well water is used. Eight trays will be used per stack of vertical incubation units. Flows to each eight tray stack will be between five to six gallons per minute (gpm). Trays will be loaded with eggs (3,000 – 5,000) from only one female. Catch basins are in place to eliminate the accumulation of silt and sand within the trays. After 48 hours, formalin treatments (1667 ppm) are issued three times per week to control fungal contamination and are discontinued when eggs reach eye-up. Eyed egg stage is generally reached at 560 FTUs at which eggs are then shocked to locate and remove dead or unfertilized eggs.

2.6.9.10. Juvenile fish health - The IDFG fish health staff will conduct scheduled inspections and random ones if necessary. Individuals may be given injections of Erythromycin-200, oxytetracycline, or other prophylactic treatments to counter specific diseases. During rearing, juveniles will be fed two meals of medicated feed. Disinfection protocols for foot baths, equipment, trucks, vats, raceways, and nets are in place for sanitation purposes. Testing for bacterial kidney disease, whirling disease, and viral replicating agents will be conducted under the Idaho Fish and Game Eagle Fish Health Laboratory between 45 and 30 days prior to release to obtain fish health certification. *Doug Munson*

2.6.9.11 Communication – The YFCSS will complete weekly, monthly, and annual reports to the cooperating agencies during in-season management and post-season analysis, respectively.

2.6.10 Lemhi River Supplementation Project (LRCSS)

The Lemhi River has been chosen by the ICTRT (2006) as one population that must meet the viability criteria as it provides important connectivity to other Major Population Groups, as a large, downstream population and historically may have supported summer Chinook production. Coordinating parties have committed to reviewing options for the Lemhi River to develop details for objectives, rearing strategies and facilities, release numbers, and a mark plan.

As a result, the Shoshone-Bannock Tribes has initiated planning to implement a hatchery supplementation program in the Lemhi River. Planning for this hatchery would commence with FY 2009 funding and include the development of a Hatchery Genetics Management Plan (HGMP) and a feasibility plan which includes engineering, design, and construction costs. Meanwhile, the Tribes would determine the existing population size, genetics, and applicable information for determining the best available stock for re-introduction. Initiation of this project would promote recovery and production of the ESU and help in achieving an ESU standard where the population is no longer at risk or needs protection.

3. Rainbow Trout

3.1 Brood Year 2008-2009 Rainbow Trout

3.1.1 Salmon River

Tucannon FH receives 70,000 Kamloops stock eyed eggs (triploid) from Hayspur FH in January. Fish are reared at Tucannon FH until transfer (approximately 52,000 fry at 75 fpp) to Lyons Ferry FH for marking (AD/LV or AD/RV – alternating yearly) and final rearing in July. Approximately 50,000 fish will be transferred to the IDFG in October (15 fpp) for release in the lower Clearwater (25,000) and lower Salmon (25,000) rivers. *Jon Lourak/Bill Horton*

Lyons Ferry FH receives 160,000 Spokane stock eggs from the Spokane FH in December. Eggs are placed in hatching baskets, fry emerge into intermediate rearing tanks, and are transferred to outside raceways in March (~200 fpp). Fish are reared until transfer to the IDFG (160,000 at 60-80 fpp) in May and planted in inland lakes and ponds. *Jon Lourak/Bill Horton*

Recent changes in regulations for importation of fish into the State of Idaho will require import permits issued by both IDFG and the Idaho State Department of Agriculture (ISDA) prior to moving rainbow trout from Lyons Ferry FH. In order to issue permits, fish health inspection certificates are required. Steve Roberts (pathologist for WDFD) will do the sampling. *Doug Burton*

Sawtooth FH: Nampa Fish Hatchery (NFH) supplied SFH with Trout Lodge triploid rainbows for stocking. A total of 46,129 fish were delivered to SFH from May 21 to July 14. Based on 18 sample counts, the fish averaged 3.38 fish per pound and 9.06 inches in length (230mm). SFH personnel stocked a total of 46,129 fish in local lakes and streams. NFH stocked Stanley, Pettit, Perkins, and Alturas lakes in 2008. Due to the presence of *Ichthyophthirius multifiliis* (ICH) at Nampa hatchery, all groups of fish transferred to SFH received metaphylactic treatment with formalin prior to the transfer. Gills from 60 individuals per raceway were inspected no more than 10 days prior to transfer. If any trophonts were detected, the transfer would have been delayed for further treatments and another inspection. This protocol will be followed again in 2009.

National Marine Fisheries Service (NMFS) permit #1188 which expired on December 31, 2005, outlines resident rainbow trout release into anadromous waters in the Salmon River drainage. The permit allows that hatchery reared rainbow trout be released in rivers, streams, and lakes with ESA-listed fish. Stocked fish should average in size no greater than 250 mm with no individual longer than 300 mm in length. The 250 mm size restriction would include fish planted in the Salmon River, Valley Creek, and the Yankee Fork Dredge Ponds. The permit stipulates the upper Salmon River cannot be stocked before June 15 and stocked fish must be adipose fin-clipped. Only fish with the adipose fin-clipped may be kept by anglers, thereby protecting wild fish. Rainbow trout received at SFH in 2008

stocked into the river were adipose clipped by NFH personnel and then delivered to SFH 21 days later to allow for withdrawal of MS-222 to comply with label directions. *Brent Snider*

McCall Summer Chinook FH redistributes 100,100 “Put and Take” Troutlodge (Triploid) rainbow trout that are reared to “catchable-size” at Nampa FH, annually. Rainbow trout are brought to MCFH by Nampa FH during in the summer then maintained in the MCFH collection basin prior to redistribution. Catchable rainbow trout out-plants take place mid-May through early-September and are stocked into 37 water bodies located in the Payette, Salmon River and Weiser River drainages near McCall. *Gene McPherson/ Steve Kammeyer*

4. Sockeye Salmon

4.1 Brood Year 2004 Sockeye Salmon

4.1.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 400 – 500 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 100,000 pre-smolts released in October (65,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.1.1.1. Production status - Production status - Currently 15 BY2004 sockeye are in production at the two facilities. The captive broodstock program is represented by three fish and the adult release production group contains 13 fish. *Dan Baker/Carlin McAuley*

4.1.1.2. Projected release - All maturing fish from NOAA Fisheries adult release group (13) will be released in September. *Carlin McAuley/Dan Baker*

4.1.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish health sampling does not occur prior to transporting juveniles from Eagle FH to Manchester or adult sockeye from Manchester back to Idaho. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free.

Mike Petersen/Doug Munson

4.1.1.4. Monitoring and evaluation - All adults released are monitored after release to determine spawning behavior information (spawn timing, spawning locations, number of redds developed, etc.). This information is collected using radio transmitters, visual observations and snorkeling over spawning areas. *Mike Peterson*

4.1.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

4.2 Brood Year 2005 Sockeye Salmon

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 400 – 500 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each broodyear will also meet production goals in the Salmon River Basin. Production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 100,000 pre-smolts released in October (65,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 100,000 smolts released in May (50,000 Salmon River and 50,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.2.1.1. Production status - Currently 207 fish are in culture representing BY2005. Most will mature as four year old fish and incorporated into the captive broodstock (40 fish) or released to Redfish Lake (approximately 160 fish). The fish that do not mature as four year olds will remain in culture until maturity. The BY2005 captive broodstock group is represented by 40 fish and the adult release group is represented by 167 fish. *Dan Baker/Carlin McAuley*

4.2.1.2. Projected release - All maturing fish from NOAA Fisheries adult release group (approximately 160) will be released in September, the remaining immature fish will remain in culture until mature. *Carlin McAuley/Dan Baker*

4.2.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish health sampling does not occur prior to transporting juveniles from Eagle FH to Manchester or adult sockeye from Manchester back to Idaho. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Doug Munson/Mark Peterson*

4.2.1.4. Monitoring and evaluation - All adults released are monitored after release to determine spawning behavior information (spawn timing, spawning locations, number of redds developed, etc.). This information is collected using radio transmitters, visual observations and snorkeling over spawning areas. *Mike Peterson*

4.2.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

4.3 Brood Year 2006 Sockeye Salmon

4.3.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 400 – 500 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 100,000 pre-smolts released in October (65,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 100,000 smolts released in May (50,000 Salmon River and 50,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.3.1.1. Production status - Currently 1,334 juveniles are in culture representing BY2006. A majority (approximately 80%) will mature as three year olds and will be incorporated into the broodstock spawning matrix. The fish that do not mature as three year olds will remain in culture until maturity. The BY2006 captive broodstock group is represented by 1,067 juveniles and the adult release group is represented by 267 juveniles. *Dan Baker/Carlin McAuley*

4.3.1.2 Projected release - All maturing fish from NOAA Fisheries adult release group (approximately 215) will be released in September, the remaining immature fish will remain in culture until mature. *Dan Baker*

4.3.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish health sampling does not occur prior to transporting juveniles from Eagle FH to Manchester or adult sockeye from Manchester back to Idaho. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Doug Munson/Mark Peterson*

4.3.1.4. Monitoring and evaluation - All adults released are monitored after release to determine spawning behavior information (spawn timing, spawning locations, number of redds developed, etc.). This information is collected using radio transmitters, visual observations and snorkeling over spawning areas. *Mike Peterson*

4.3.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

4.4 Brood Year 2007 Sockeye Salmon

4.4.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 800 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive brood stock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 100,000 pre-smolts released in October (65,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 150,000 smolts released in May (75,000 Salmon River and 75,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.4.1.1. Production status - Currently Eagle FH has 449 fish representing BY2007 captive broodstock. NOAA Fisheries has 276 fish representing BY2007 captive broodstock and 332 fish representing adult release production. *Dan Baker/Carlin McAuley*

4.4.1.2. Projected release - No BY2007 sockeye salmon are projected for release in 2009. *Dan Baker*

4.4.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Doug Munson/Mark Peterson*

4.4.1.4. Monitoring and evaluation - NA

4.4.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Carlin McAuley*

4.4.2 Sawtooth Fish Hatchery

Sawtooth FH is used as a rearing station for the sockeye pre-smolt and smolt production. Eyed-eggs are transferred to Sawtooth in November and December to meet production goals. Current production goals at Sawtooth are 100,000 pre-smolts for Salmon River Basin Lakes in October and up to 100,000 smolts for Salmon River Basin released in May.

4.4.2.1. Production status - Sawtooth FH is currently rearing 99,411 juveniles in two outside raceways. These fish are scheduled to be released in May 2009 as smolts. *Brent Snider/Dan Baker*

4.2.2.2 Projected release - Approximately 99,411 smolts will be released the first week in May at the Sawtooth FH weir on the Salmon River and/or below the smolt trap on Redfish Lake Creek. *Brent Snider/Dan Baker*

4.4.2.3. Fish health - Fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained disease free. A 60 fish sample will be tested before release for viral and bacterial pathogens. All pathology guidelines will be met before pre-smolts are released. *Doug Munson*

4.4.2.4. Monitoring and evaluation - All smolts have been ad-clipped, CWT tagged and 51,000 will be PIT tagged before release. Survival to Lower Granite Dam will be evaluated as well as smolt to adult survival from different release strategies. *Mike Peterson*

4.4.2.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson*

4.4.3 Oxbow Fish Hatchery

Oxbow FH is operated by Oregon Department of Fish and Wildlife (ODFW). Oxbow FH was identified by SBSTOC members as a facility that could rear an additional 80,000 sockeye to the smolt stage. With modifications to the facility, the smolt production goal would be 150,000 smolts annually. Eyed-eggs are currently transferred to the facility in November/December to meet production goals. After an 18 month rearing cycle the juveniles will be transferred to Idaho and released in the Salmon River Basin.

4.4.3.1. Production status - Oxbow FH is currently rearing 73,902 juveniles in two outside raceways. These fish are scheduled to be released in May 2009 as smolts. *Dan Baker /Duane Banks*

4.4.3.2. Projected release - Approximately 73,000 smolts are scheduled for release the first week in May at the Sawtooth FH weir on the Salmon River and/or below the smolt trap on Redfish Lake Creek. *Dan Baker/Duane Banks*

4.4.3.3. Fish health - Fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained disease free. Two, 60 fish samples will be tested during culture for viral and bacterial pathogens. All pathology guidelines will be met before juveniles are transferred back to Idaho. *Doug Munson/Tony Amandi*

4.4.3.4. Monitoring and evaluation - All smolts have been ad-clipped, CWT tagged and a representative sample 11,000 will be PIT tagged before release. Survival to Lower Granite Dam will be evaluated as well as smolt to adult survival from different release strategies. *Mike Peterson*

4.4.3.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson*

4.5 Brood Year 2008 Sockeye Salmon

4.5.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 800 – 900 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each broodyear will also meet production goals in the Salmon River Basin. Annual production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 100,000 pre-smolts released in October (65,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 150,000 smolts released in May (75,000 Salmon River and 75,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.5.1.1 Production status - Currently Eagle FH has 987 fry representing BY2008 captive broodstock. NOAA Fisheries has 495 fry representing BY2008 captive broodstock and 494 fry representing adult release production. *Dan Baker/Carlin McAuley*

4.5.1.2. Projected release - No BY2008 sockeye salmon are projected for release in 2009. *Dan Baker*

4.5.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Doug Munson/Mark Peterson*

4.5.1.4. Monitoring and evaluation - *Mike Peterson*

4.5.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

4.5.2 Sawtooth Fish Hatchery

Sawtooth FH is used as a rearing station for the sockeye pre-smolt and smolt production. Eyed-eggs are transferred to Sawtooth in November and December to meet production goals. Current production goals at Sawtooth are 100,000 pre-smolts for Salmon River Basin Lakes in October and 75,000 smolts for Salmon River Basin released in May.

4.5.2.1. Production status - Sawtooth FH received 195,000 eyed eggs from Eagle FH and NOAA Fisheries to make up their BY2008 production group. Approximately 100,000 pre-smolts and 75,000 smolts will be produced from this group. *Brent Snider/Dan Baker*

4.5.2.2 Projected release BY2008 production releases will include pre-smolts to Salmon River Basin Lakes. Redfish Lake will receive 65,000 pre-smolts in October, Alturas Lake will receive 20,000 pre-smolts in October and Pettit Lake will receive 15,000 pre-smolts in October. *Dan Baker*

4.5.2.3. Fish health - Fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained disease free. A 60 fish sample will be tested before release for viral and bacterial pathogens. All pathology guidelines will be met before pre-smolts are released. *Doug Munson*

4.5.2.4. Monitoring and evaluation - All pre-smolts are ad-clipped and a representative sample will be PIT tagged before releases. Out-migration will be monitored the following spring to estimate out-migration from different release strategies. A representative sample of out-migrants will be PIT tagged and survival will be monitored downstream as smolts pass each dam. *Mike Peterson*

4.5.2.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson*

4.5.3 Oxbow Fish Hatchery

Oxbow FH is operated by Oregon Department of Fish and Wildlife (ODFW). Oxbow FH was identified by SBSTOC members as a facility that could rear an additional 80,000 sockeye to the smolt stage. With modifications to the facility, the smolt production goal would be 150,000 smolts annually. Eyed-eggs are currently transferred to the facility in November/December to meet production goals. After an 18 month rearing cycle the juveniles will be transferred to Idaho and released in the Salmon River Basin.

4.5.3.1 Production status - NOAA Fisheries transferred 86,938 eyed-eggs in November and December to meet production goals. Currently Oxbow FH has 86,938 fry in production scheduled for a 2010 smolt release. *Duane Banks/Dan Baker*

4.5.3.2. Projected release - No projected release of BY 2008 juveniles in 2009. *Dan Baker*

4.5.3.3. Fish health - Fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained disease free. Two, 60 fish samples will be tested during culture for viral and bacterial pathogens. All pathology guidelines will be met before juveniles are transferred back to Idaho. *Doug Munson/Tony Amandi*

4.5.3.4. Monitoring and evaluation - NA

4.5.3.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson*

4.6 Brood Year 2009 Sockeye Salmon

4.6.1 BY09 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 800 – 900 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Annual production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 100,000 pre-smolts released in October (65,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 150,000 smolts released in May (75,000 Salmon River and 75,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.6.1.1. Projected adult return - Projected anadromous adults returning in 2009 to Salmon River Basin weirs (Sawtooth FH weir and Redfish Lake Creek weir) is 500 sockeye. *Mike Peterson*

4.6.1.2. Ladder operation - Fish weirs on Salmon River at Sawtooth FH and Redfish Lake Creek are monitored from mid-July through mid-September. All anadromous sockeye trapped are returned to Eagle FH for temporary holding or will be released directly to Redfish Lake. *Brent Snider/Dan Baker*

4.6.1.3. Adult fish health - Adults returned to Eagle FH to be incorporated into the spawning matrix are sampled for all viral and bacterial pathogens. Special precautions are taken to isolate/quarantine this group from the captive population. *Doug Munson*

4.6.1.4. Adult outplanting/marking - Returning adults will be incorporated into the spawning matrix at Eagle FH and/or released with captive reared adults to Redfish Lake. *Dan Baker/Mike Peterson*

4.6.1.5. Carcass disposition - All carcasses as a result of spawning or pre-spawn mortalities will be disposed of at the local rendering plant. *Dan Baker*

4.6.1.6. Adult monitoring and evaluation - Adults released to Redfish Lake may receive radio transmitters to monitor their activities after release. Visual observation and snorkeling over known spawning areas will also be used to evaluate spawning behavior. *Mike Peterson*

4.6.1.7. Spawning/egg take plans, mating protocol - Returning anadromous adults that are not released will be incorporated into the captive broodstock spawning matrix at Eagle FH. The spawning matrix used at Eagle FH is a 1 x 3 matrix. Crosses are made based on least related individuals determined from micro satellite analysis. Every attempt is made to represent all males in the population equally. *Dan Baker*

4.6.1.8. Egg incubation - Eggs will be incubated at 8 degrees Celsius until the eyed-stage. Survival to eye will be calculated and eyed –eggs will be used in a variety of release strategies (depending on pathology results of the males and females used in the spawn crosses. *Dan Baker*

4.6.1.9. Projected releases - Pettit Lake receives about 50,000 eyed-eggs as a result of spawning operations at Eagle FH and NOAA Fisheries. *Dan Baker*

4.6.1.10. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

5. Contacts

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6. Appendices

A. Snake River Germplasm Repository Cryopreserved Semen Request Form

Snake River Germplasm Repository Committee
Bill Young
P.O. Box 1942, 125 South Mission St
McCall, ID 83638
Phone: (208) 634-5290
Fax: (208) 634-4097

Snake River Germplasm Repository Cryopreserved Semen Request Form

Name: _____ Affiliation: _____
Phone number: (____) _____ Address: _____
Date of request: _____ Date need by: _____
Species/stock requested: _____ Hatchery or wild/natural: _____
Number of individuals: _____ Number of straws needed: _____ 0.5ml _____ 5.0ml
Reason for request (clearly demonstrate need or type of hatchery program): _____

Fertilization experience using cryopreserved semen: _____

Name, address, and phone number of person samples should be delivered to: _____

Please use additional pages as necessary.

The salmon managers of the Snake River Basin are concerned with how cryopreserved samples are being used and retain the right to refuse samples for inappropriate use of the threatened salmonid species gametes. The Nez Perce Tribe can arrange to deliver and assist in the fertilization of eggs. Please call Bill Young at the McCall Field Office (address above) to coordinate transfer. The Nez Perce Tribe also may request data on the performance of the semen (percent of eggs fertilized, post-thaw sperm motility, etc.).

Signature: _____ Date: _____

7. Tables

Table 1. LSRCP, Salmon River Basin Steelhead Proposed Releases, 2009.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD Only	# AD / CWT	# CWT Only	# PIT *	No Marks/ Tags	Other Marks			
Hagerman NFH	FWS	STH	Saw A	2008	Sawtooth Weir	4/7-4/25	750,000	766,000	686,000	80,000	0	7,800	0		Pro		
			Saw A	2008	Yankee Fork	4/28-5/2	160,000	152,000	152,000	0	0	0	1,600	0		Pro	
			Saw A	2008	Yankee Fork	4/28-5/2	150,000	150,000	0	0	0	0	1,500	150,000	0		Sup
			Pah A	2008	L. Salmon R. Stinky Springs	3/26-4/2	160,000	160,000	0	0	0	0	4,800	160,000	0		Sup
			Pah A	2008	L. Salmon R. Hazard Ck.	3/26-4/2	40,000	40,000	0	0	0	0	1,200	40,000			Sup
			Dwor B	2008	L. Salmon R. Stinky Springs	4/2-4/4	100,000	100,000	20,000	80,000	0	5,000	0				Pro
			Dwor B	2008	East Fork Salmon R.	5/5-5/7	100,000	100,000	20,000	80,000	0	5,000	0				Pro
Hagerman Totals				2008			1,450,000	1,468,000	878,000	240,000	0	26,900	350,000				
Magic Valley FH	IDFG	STH	Dwor B	2008	L. Salmon R. Stinky Springs	4/8-4/10	223,000	223,000	159,000	64,000	0	4,200	0		Pro		
			Dwor B	2008	Squaw Ck. Pond	4/7-4/8	60,000	61,000	0	61,000	61,000	1,150	0		Pro		
			Dwor B	2008	Squaw Ck.	4/24-4/26	224,000	224,000	224,000	0	0	4,200	0		Pro		
			Up Sal B	2008	Squaw Ck.	4/8-4/10	60,000	59,000	0	59,000	0	7,000	0		Pro		
			E.F. Nat	2008	E.F. Salmon R. Weir	4/30	70,000	70,000	0	0	70,000	1,300	0		Sup		
			Dwor B	2008	E.F. Salmon R. Lower river	4/23-4/26	225,000	225,000	160,000	65,000	0	4,200	0		Pro		
			Saw A	2008	Slate Cr.	4/28-4/30	30,000	32,000	0	32,000	0	600	0		Pro		
			Pah A	2008	Salmon R. Red Rock	4/13-4/17	120,000	129,000	97,000	32,000	0	2,400	0		Pro		
			Saw A	2008	Slate Cr.	4/28-4/30	60,000	64,000	0	0	0	1,200	64,000		Sup		
			Pah A	2008	Salmon R. Shoup Bridge	4/19-4/23	80,000	96,000	96,000	0	0	1,800	0		Pro		
			Saw A	2008	Yankee Fork	4/29-4/30	60,000	64,000	32,000	32,000	0	1,200	0		Fall		
			Saw A	2008	Yankee Fork	4/29-4/30	30,000	32,000	0	0	0	600	32,000		Sup		
			Saw A	2008	Salmon R. Colston Corner	4/17-4/18	140,000	128,000	96,000	32,000	0	2,400	0		Pro		
Pah/Saw A	2008	Salmon R. Tunnel Rock	4/24-4/27	60,000	64,000	64,000	0	0	1,200	0		Pro					

Table 1. Continued

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD Only	# AD/ CWT	# CWT Only	# PIT *	No Marks/ Tags	Other Marks	
			Pah A	2008	Salmon R. McNabb Point	4/19-4/20	120,000	128,000	96,000	32,000	0	2,400	0		Pro
			Pah A	2008	Pahsimeroi R. Trap	4/20	30,000	32,000	0	32,000	0	600	0		Pro
			Saw A	2008	Valley Cr.	4/30	50,000	64,000	0	0	0	1,200	64,000		Sup
Magic Valley Totals:				2008			1,591,000	1,700,000	1,024,000	441,000	131,000	37,650	160,000		
Sawtooth	IDFG/ SBT	STH	Saw A	2008	TBD 4 sites	Apr-May	500,000								Egg

* PIT tags are applied representatively to estimate in-river survival of juveniles and to estimate smolt-to-adult return rates for specific release groups or aggregates of release groups. All PIT tag releases are passed through the FCRPS according to protocols developed for the Comparative Survival Study (CSS). Approximately 70 % of PIT tags in each release group are provided by the LSRCP and are treated as like the run at large. The remaining 30% of the tags are supplied by CSS and are bypassed for river reach survival estimates. **PIT tag totals include fish with other marks and are independent of the totals of other graph columns.**

Table 2. Idaho Power Company Salmon River Basin Steelhead Proposed Releases (including Snake River), 2009.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD Only	# AD/ CWT	# CWT Only	# PIT*	No Marks/ Tags	Other Marks	
Niagara Springs	IDFG	STH	Pah A	2008	Pahsimeroi R. Trap	4/8- 4/25	830,000	830,000	800,000	30,000	0	10,400	0		Pro
			Oxbow A	2008	L. Salmon R. Stinky Springs	3/28 - 4/3	275,000	275,000	255,000	20,000	0	4,200	0		Pro
			Pah A	2008	L. Salmon R. Stinky Springs	4/4 - 4/7 & 4/26-30	170,000	170,000	150,000	20,000	0	2,600	0		Pro
			Oxbow A	2008	Snake River Hells Canyon	3-17 to 3/27	525,000	525,000	505,000	20,000	0	8,000	0		Pro
Niagara Spring Totals:				2008			1,800,000	1,800,000	1,710,000	90,000	0	25,200	0		
Pahsimeroi	IDFG/ SBT	STH	Pah A	2008	TBD 4 sites	Apr-May	500,000								Egg

* PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 3. LSCR and BPA, Salmon River Basin Spring/Summer Chinook Proposed Releases, 2009.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD Only	# AD/ CWT	# CWT	# PIT*	No Marks/ Tags	Other Marks	
McCall	IDFG	SUCH	S. F. Salmon	2007	S.F. Salmon Knox Bridge	3/23 to 3/25	1,000,000	1,106,700	844,950	261,750	0	51,694	0		100%
McCall	NPT	SUCH	Johnson Cr.	2007	Johnson Cr Wapiti Ranch	3/16 to 3/18	100,000	91,080	0	0	91,080	2,094	0	100% VIE Red (L)	100% No
McCall	IDFG	SUCH	S.F. Salmon	2008	S.F. Salmon Trap Intake	Sept. 2009	Excess BY08	TBD	TBD	0	0	0	0		100% Onl
McCall	SBT	SUCH	S.F. Salmon	2009	Dollar Cr.	October 2009	300,000 Eyed	TBD	0	0	0	0	0		Eye Egg
Sawtooth	IDFG	SPCH	Upper SR	2007	Sawtooth weir	4/14	1,700,000	274,644	170,658	103,986	0	18,755	0		
Sawtooth	IDFG/SBT	SPCH	Upper SR	2007	Yankee Fork	TBD	TBD	0	0	0	0	0	0		YFC
Eagle	IDFG	SPCH	West Fork Yankee Fork SR	2004 - 2005	WFYF	7/09	40	125	125	0	0	125	0	Orange VIE Left eye & 100% spag.tag	Sup
Eagle	IDFG	SPCH	East Fork Salmon R	2003 - 2005	EFSR	7/09	40	132	132	0	0	132	0	100 % spag.tag	Sup

* PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 4. Idaho Power Company, Salmon River Spring/Summer Chinook Proposed Releases (including Snake River), 2009.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD Only	# AD/ CWT	# CWT Only	# PIT*	No Marks/ Tags	Other Marks	
Pahsimeroi	IDFG	SUCH	Salmon River	2007	Rearing Ponds	3/30/2009	1,000,000	870,842	817,664	53,178	0	18,750	0		
Rapid River	IDFG	SPCH	Rapid River	2007	Snake R. Hells Canyon	3/16-3/19/2009	350,000	501,750	100% AD	0	0	0	0	None	
Rapid River	IDFG	SPCH	Rapid River	2007	Little Salmon R.	3/20/2009	150,000	200,250	100% AD	0	0	0	0	None	
Rapid River	IDFG	SPCH	Rapid River	2007	Rapid River	3/16-4/24/2009	2,500,000	2,500,000	2,352,560	147,441	0	51,670	0	None	

* PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 5. BPA, Salmon River Redfish Lake Sockeye Proposed Releases (including Snake River), 2009.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD Only	# Ad/ CWT	# PIT	Other Marks	Comments
Burley Creek	NOAA	SO	Snake River	2004	Redfish Lake	9/09	0	13	13	0	13		Production
Burley Creek	NOAA	SO	Snake River	2005	Redfish Lake	9/09	130	130	130	0	130		Production
Burley Creek	NOAA	SO	Snake River	2006	Redfish Lake	9/09	130	130	130	0	130		Production
Eagle	IDFG	SO	Snake River	2006	Redfish Lake	9/09	0	200	200	0	200		Production
Oxbow	ODFW	SO	Snake River	2007	Salmon River	5/09	20,000	37,000	0	37,000	5,500	RV	Production
Oxbow	ODFW	SO	Snake River	2007	Redfish Lake Creek	5/09	20,000	37,000	0	37,000	5,500	RV	Production
Sawtooth	IDFG	SO	Snake River	2007	Salmon River	5/09	20,000	50,000	0	50,000	26,500		Production
Sawtooth	IDFG	SO	Snake River	2007	Redfish Lake Creek	5/09	20,000	50,000	0	50,000	26,500		Production
Sawtooth	IDFG	SO	Snake River	2008	Pettit Lake	10/09	15,000	15,000	15,000	0	1,000		Production
Sawtooth	IDFG	SO	Snake River	2008	Alturas Lake	10/09	15,000	15,000	15,000	0	1,000		Production
Sawtooth	IDFG	SO	Snake River	2008	Redfish Lake	10/09	60,000	60,000	60,000	0	1,000		Production
Eagle/ Burley Ck.	IDFG	SO	Snake River	2009	Pettit Lake	11/15 – 12/15/09	50,000	50,000	0	0	0		Production

Table 6. Rainbow Trout Proposed Releases, 2009

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Date	Release Location	Program Goal	Estimated Release	Marks	Comments
Tucannon/ Lyons Ferry	IDFG	RBT	Kamloops	2007	Oct 2008	Lower Clearwater R.	25,000	25,000	AD/LV/RV	Triploid
Tucannon/ Lyons Ferry	IDFG	RBT	Kamloops	2007	Oct 2008	Lower Salmon R.	25,000	25,000	AD/LV/RV	Triploid
Lyons Ferry	IDFG	RBT	Spokane	2007	April/May	ID inland lakes And ponds	160,000	160,000		
Nampa/ Sawtooth	IDFG	RBT	Trout Lodge	2007	July	Sawtooth basin lakes and streams	50,000	50,000		Triploid

Table 7. LSCR and BPA, Salmon River Basin Spring/Summer Chinook Proposed Releases, 2010.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD Only	# AD/CWT	# CWT Only	# PIT*	No Marks/Tags	Other Marks	C
McCall	IDFG	SUCH	S.F. Salmon	2008	S.F. Salmon Knox Bridge	March 2010	1,000,000 Smolts	1,050,000 Smolts	850,000 Smolts	200,000 Smolts		52,000 Smolts			1
McCall	NPT	SUCH	Johnson Cr	2008	Johnson Cr Wapiti Ranch	March 2010	100,000 Smolts	100,950 Smolts			100,950 Smolts	4,000 Smolts		50% VIE TBD	1 N
McCall	SBT	SUCH	S.F. Salmon	2010	Dollar Cr.	October 2010	300,000 Eyed	TBD							E E
Sawtooth	IDFG	SPCH	Upper SR	2008	Sawtooth weir	4/10	1,700,000	1,700,000	1,300,000	104,000		18,800		none	
Sawtooth	IDFG/GBT	SPCH	Upper SR	2008	Yankee Fork	TBD	TBD	TBD	TBD		TBD				Y
Eagle	IDFG	SPCH	West Fork Yankee Fork SR	2005	WFYF	7/10	40	10	10		0	10		Orange VIE Left eye & spaghetti tag	S
Eagle	IDFG	SPCH	East Fork Salmon R	2005	EFSR	7/10	40	15	15		0	15		Spaghetti tag.	S

* PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 8. Idaho Power Company, Salmon River Spring/Summer Chinook Proposed Releases (including Snake River), 2010.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# AD/CWT	# CWT	# PIT*	No Marks/Tags	Other Marks
Pahsimeroi PAH AGE 0	IDFG	SUCH	Salmon River	2008	Rearing Ponds	3/31/2010	1,000,000	1,100,000	100% AD	120,000		18,800		
				2009			100,000							
Rapid River	IDFG	SPCH	Rapid River	2008	Snake R. Hells Canyon	3/15-3/18/2010	350,000	350,000	100% AD		0	0		None
Rapid River	IDFG	SPCH	Rapid River	2008	Little Salmon R.	3/19/2010	150,000	150,000	100% AD		0	0		None
Rapid River	IDFG	SPCH	Rapid River	2008	Rapid River	3/15-4/26/2010	2,500,000	2,500,000	100% AD	100,000		52,000		None

* PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 9. LSRCP, Salmon River Basin Steelhead Actual Releases, 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location*	Release Date	Program Goal	Actual Release	# AD	# AD/ CWT	# CWT	# PIT**	No Marks/ Tags	Other Marks
Hagerman NFH	FWS	STH	Saw A	2007	Sawtooth Weir	4/16/5/7	810,000	767,523	687,969	79,554	0	9,887	0	
			Saw A	2007	Yankee Fork	5/12-5/16	140,000	134,541	0	0	0	2,477	134,541	
			Saw A	2007	Yankee Fork	5/12-5/15	100,000	100,879	100,879	0	0	0	0	
			Pah A	2007	L. Salmon R. Pinehurst Bridg	3/31-4/25	40,000	44,310	0	0	0	1,475	43,310	
			Pah A	2007	L. Salmon R. Pinehurst Bridg	3/31-4/25	160,000	161,236	0	0	0	4,277	161,236	
			Dwor B	2007	L. Salmon R. Stinky Springs	4/7-4/25	100,000	92,103	92,103	0	0	6,140	0	
			Dwor B	2007	East Fork Salmon R.	5/8-5/9	100,000	86,931	86,931	0	0	5,192	0	
Hagerman Total				2007			1,450,000	1,387,523	967,882	79,554	0	29,448	399087	
Magic Valley FH	IDFG	STH	Dwor B	2007	L. Salmon R. Pinehurst Bridg	4/7-4/10	217,000	217,180	157,722	59,458	0	4,691	0	
			Dwor B	2007	Squaw Ck. Pond	4/15	60,000	62,910	2,307	60,603	0	1,493	0	
			Dwor B	2007	Squaw Creek	4/18-4/25	130,000	180,585	180,585	0	0	4,712	0	
			Up Sal B	2007	Squaw Creek	4/9-4/10	60,000	62,314	1,869	60,445	0	6,155	0	
			E.F. Nat	2007	E.F. Salmon R. Weir	4/25-4/28	50,000	63,020	0	0	61,129	1,841	0	
			Dwor B	2007	E.F. Salmon R. Lower river	4/18-4/22	195,000	226,646	196,869	29,777	0	4,251	0	
			Pah A	2007	Salmon R. Red Rock	4/10-4/11	130,000	121,414	92,016	29,398	0	1,396	0	
			Pah A	2007	Slate Creek	4/18	40,000	31,975	959	31,016	0	1,841	0	
			Pah A	2007	Slate Creek	4/28-5/1	60,000	60,084	0	0	0	0	60,084	
			Pah A	2007	Salmon R. Shoup Bridge	4/14-4/15	80,000	91,090	91,090	0	0	1,397	0	
			Saw A	2007	Yankee Fork	4/30	60,000	61,431	32,757	28,674	0	1,592	0	
			Saw A	2007	Yankee Fork	4/30	30,000	30,695	0	0	0	0	30,695	
			Pah/Saw A	2007	Salmon R. Colston Corner	4/14-4/16	140,000	129,165	100,247	28,918	0	1,396	0	
			Pah/Saw A	2007	Salmon R. Tunnel Rock	4/18-4/23	60,000	70,699	70,699	0	0	1,263	0	
			Pah/Saw A	2007	Salmon R. McNabb Point	4/17-/4/18	120,000	115,523	87,040	28,483	0	1,391	0	

Table 9. Continued.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD Only	# AD/ CWT	# CWT Only	# PIT*	No Marks/ Tags	Other Marks
			Pah A	2007	Pahsimeroi R. Trap	4/14	30,000	30,733	1,946	28,787	0	440	0	
			Saw A	2007	Valley Cr.	4/29	50,000	62,484	0	0	0	996	62,484	
Magic Valley Total				2007			1,570,000	1,617,948	1,016,106	385,559	61,129	34,855	153,263	
Sawtooth	IDFG/ SBT	STH	Saw A	2008	See section	Apr-May	500,000	624,654						

* Pinehurst Bridge was used as a substitute release site for Stinky Springs due to snow limiting access to Stinky Springs

** PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 10. Idaho Power Company Salmon River Basin Steelhead Actual Releases (including Snake River), 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD Only	# AD/ CWT	# CWT Only	# PIT*	No Marks/ Tags	Other Marks
Niagara Springs	IDFG	STH	Pah A	2007	Pahsimeroi R. Trap	4/10-4/29	830,000	838,419	776,012	62,407	0	295	0	
			Oxbow A	2007	Hells Canyon	3/24-4/2	525,000	537,371	508,032	29,339	0	300	0	
			Pah A	2007	L. Salmon R. Pinehurst Bridg	4/9-4/29	170,000	48,700	18,260	30,440	0	301	0	
			Oxbow A	2007	L Salmon R. Hazard Crk	4/2-4/9	275,000	272,906	244,544	28,362	0	298	0	
Niagara Totals				2007			1,800,000	1,697,396	1,546,848	150,548	0	1,194	0	
Pahsimeroi	IDFG/ SBT	STH	Pah A	2008	TBD 4 sites	Apr-May	574,778	573,197						

* PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 11. LSCR and BPA, Salmon River Basin Spring/Summer Chinook Actual Releases, 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD Only	# AD/ CWT	# CWT On;y	# PIT*	No Marks/ Tags	Other Marks
McCall	IDFG	SUCH	S.F. Salmon	2006	S.F. Salmon Knox Bridge	3/17 to 3/20	1,000,000 Smolts	1,060,540 Smolts	807,100 Smolts	253,440 Smolts	0	51,678 Smolts	0	
McCall	NPT	SUCH	Johnson Cr	2006	Johnson Cr Wapiti Ranch	3/10 to 3/12	100,000 Smolts	88,085 Smolts	0	0	88,085 Smolts	11,957 smolts	0	100% VIE (green right)
McCall	SBT	SUCH	S.F. Salmon	2008	Dollar Cr.	Oct 14-15 2008	300,000 Eyed	322,620 Eyed	0	0	0		0	
Sawtooth	IDFG	SPCH	Upper SR	2006	Sawtooth weir	4/11	1,300,000	174,132	0	0	100%	14,925	0	
Sawtooth	IDFG/S BT	SPCH	Upper SR	2006	Yankee Fork		TBD						0	
Eagle	IDFG	SPCH	West Fork Yankee Fork SR	2002 - 2005	WFYF	7/10/08	40	185	185	0	0	185	0	100% spaghetti tags
Eagle	IDFG	SPCH	East Fork Salmon R	2002 - 2005	EFSR	7/21/08	40	159	159	0	0	159	0	100% spaghetti tags

* PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 12. Idaho Power Company, Salmon River Spring/Summer Chinook Actual Releases (including Snake River), 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD Only	# AD/ CWT	# CWT	# PIT*	No Marks/ Tags	Other Marks
Pahsimeroi	IDFG	SUCH	Salmon River	2006	Rearing Ponds	3/33/2008-4/18/2008	1,000,000	1,037,772	878,802	158,970	0	14,761	0	None
Rapid River	IDFG	SPCH	Rapid River	2005	Snake R. Hells Canyon	3/17 - 3/20/ 2008	350,000	488,910	100% AD	0	0	0	0	None
Rapid River	IDFG	SPCH	Rapid River	2005	Little Salmon R.	3/21/08	150,000	200,825	100% AD	0	0	0	0	None
Rapid River	IDFG	SPCH	Rapid River	2005	Rapid River	3/18- 4/25/ 2008	2,500,000	2,493,719	2,383,457	110,262	0	117,620	0	

* PIT tag totals include fish with other marks and are independent of the totals of other graph columns.

Table 13. BPA, Salmon River Redfish Lake Sockeye Actual Releases (including Snake River), 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD	# CWT	# PIT	Other Marks	Comments
Burley Creek	NOAA	SO	Snake River	2003	Redfish Lake	9/10/08	0	2	2	0	2		Production
Burley Creek	NOAA	SO	Snake River	2004	Redfish Lake	9/10/08	50	26	26	0	26		Production
Burley Creek	NOAA	SO	Snake River	2005	Redfish Lake	9/10/08	250	225	225	0	225		Production
Eagle	IDFG	SO	Snake River	2005	Redfish Lake	9/17/08	0	145	145	0	145		Production
Eagle	IDFG	SO	Snake River	2004	Redfish Lake	9/2/08	0	57	57	51	0	RV - 37	Production
Eagle	IDFG	SO	Snake River	2004	Redfish Lake	9/16/08	0	413	310	272	1	RV -223	Production
Direct	IDFG	SO	Snake River	2004	Redfish Lake	9/2/08 – 10/14/08	0	50	40	30	2	RV - 24	Production
Oxbow	ODFW	SO	Snake River	2006	Salmon River	5/07/08	40,000	76,587	76,587	76,587	998	LV	Production
Sawtooth	IDFG	SO	Snake River	2006	Redfish Lake Creek	5/07/08	40,000	73,808	73,808	73,808	979		Production
Sawtooth	IDFG	SO	Snake River	2007	Pettit Lake	10/06/08	15,000	10,048	10,048	0	1,005		Production
Sawtooth	IDFG	SO	Snake River	2007	Alturas Lake	10/06/08	20,000	16,864	16,864	0	974		Production
Sawtooth	IDFG	SO	Snake River	2007	Redfish Lake	10/07/08	85,000	57,093	57,093	0	1,006		Production
Eagle/ Burley Cr.	IDFG	SO	Snake River	2008	Pettit Lake	11/25 & 12/03/08	50,000	67,975	0	0	0		Production

Table 14. Summer Steelhead Eyed Egg or Swim Up Fry Requests.

Requesting Hatchery or Program	Source/Hatchery Stock	Current Year Request	Comments
Hagerman NFH	Sawtooth FH - A's Sawtooth FH – E.F. Salmon R Naturals	1,400,000 170,000	Includes 480K for Yankee Fork Via Sawtooth FH
Magic Valley FH	Pahsimeroi FH – A's Sawtooth FH - A's Dworshak – B's Upper Salmon R. – B's	625,000 140,000 1,050,000 140,000	Incubated at Pahsimeroi Via Clearwater FH Via Squaw Pond
Niagara Springs FH	Pahsimeroi FH – A's Via Oxbow FH Oxbow FH – A's	1,104,000 880,000	552,000 Eyed Eggs/Incubated at Pahsimeroi 552,000 Swim Up Fry/Incubated at Pahsimeroi 440,000 Eyed Eggs 440,000 Swim Up Fry
Shoshone Bannock Tribe	Pahsimeroi FH – A's Sawtooth FH – A's	500,000 500,000	Egg Box Program Egg Box Program